

EXAMINING PSYCHOSOCIAL FACTORS AND INTENT TO USE PREP  
AS AN HIV PREVENTION STRATEGY AMONG AFRICAN AMERICAN  
WOMEN IN THE SOUTHERN UNITED STATES

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BY  
STEPHANNE P. HALE, BSN, MBA, MHA

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## DEDICATION

To my Heavenly Father and my LORD and Savior JESUS CHRIST;  
For always providing me with what I need and for never leaving my side.

THANK YOU!

To the love of my life and the reason I continue; my daughter;

Ms. Jessikah Marie.

I SO LOVE YOU!

To the best grandparents one could ever have;

Mr. and Mrs. Chester and Estella Johnson

I AM SO BLESSED!

I DID IT!!!

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## ABSTRACT

STEPHANNE P. HALE

### EXAMINING PSYCHOSOCIAL FACTORS AND INTENT TO USE PREP AS AN HIV PREVENTION STRATEGY AMONG AFRICAN AMERICAN WOMEN IN THE SOUTHERN UNITED STATES

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HIV/AIDS rates continue to be worst among African Americans (AA) compared to other racial and ethnic groups. In particular, African American women are more impacted than any other group. The primary mode of transmission among AA women is high risk heterosexual contact. In 2010, AA women accounted for 87 percent of new HIV infections from heterosexual sex (Centers for Disease Control and Prevention [CDC], 2012). Since the discovery of the epidemic in the United States, HIV prevention strategies have been implemented with documented success. Programs such as increasing awareness about HIV/AIDS, proper and consistent condom use, and decreasing high risk sexual behaviors have all been proven effective in decreasing HIV transmission. However, that success has not been realized among AA women. Literature suggests that a major reason for increased HIV rates within the AA female population is the impact of psychosocial factors and low HIV risk perception. AA women do not perceive themselves to be at increased risk for contracting HIV. This low perception of risk can lead to a false sense of security and a decreased belief that protection from HIV is required. Therefore, in an effort to develop future HIV prevention programs that would

be effective among AA females, it is critical that psychosocial factors, such as perceived risks, and the impact they have on sexual health and sexual decision making are understood.

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## CHAPTER I

### INTRODUCTION

According to the Centers for Disease Control and Prevention (CDC) (2014a), the highest proportion of new cases of Human Immunodeficiency Virus (HIV) infections are among the African American (AA) population (Paxton, Williams, Bolden, Guzman, & Harawa, 2013; Adimora, Schoenbach, & Floris-Moore, 2009; Stampley, Mallory, & Gabrielson, 2005). In 2010, despite comprising only 12 percent of the US population, African Americans represented 44 percent of all new HIV infections; this is an infection rate eight times that of Whites (CDC, 2014a; Kaiser Family Foundation [KFF], 2014; US Department of Health and Human Services [USDHHS], 2013). A core group of the AA population burdened with increasing HIV rates is AA women. Recent CDC (2015e) data reveals that of all new HIV infections in 2010, 64 percent occurred in AA women. In 2010, AA women also had 23 times the AIDS rate than White women and were 15 times more likely to succumb to HIV and AIDS complications compared to non-Hispanic White women (USDHHS, 2013). The same year, 57.2 percent of all new HIV infections occurred among African Americans in the southern US. Of that 57.2 percent, 46 percent were AA women (Prejean, Tang, & Hall, 2013).

High-risk heterosexual sex is the primary mode of HIV transmission among AA women (Paxton et al., 2013). In 2009, AA women accounted for approximately 30 percent of new HIV infections among all AAs and of those, 85 percent of the women

infected reported contracting HIV via heterosexual intercourse (Hall, 2013). Despite these facts, heterosexual women do not perceive themselves at risk for contracting HIV (Paxton et al., 2013).

Although there has been an increased effort to develop HIV prevention campaigns to stop the spread of HIV among other groups, those campaigns have not shown the expected results in the African American population, and more specifically, HIV prevention campaigns have not been successful in preventing the spread of the virus in Black women (Hall, 2013; Laurencin, Christensen, & Taylor, 2008). For the most part, HIV prevention efforts have not fully analyzed and understood personal and social factors of Blacks that impact HIV protective behaviors. Examples of these factors include HIV risk perception, self-efficacy to engage in HIV protective behaviors, personal attitudes toward condom use, and stereotypes and stigma related to HIV/AIDS. The lack of focus on these factors and HIV prevention in AA women has resulted in a gap in programs and services designed to identify and address behavioral risks associated with increased HIV transmission within this group (Winningham et al., 2004).

Pre-Exposure Prophylaxis (PrEP) is a biomedical strategy proven to prevent the spread of HIV in high-risk groups (Wingood et al., 2013) when used in conjunction with traditional risk reduction methods. However, PrEP adoption in Black women has been slow. Because of this, more research is needed to assess factors that influence PrEP adoption in African American women.

## **Statement of the Purpose**

Although evidence-based social and behavioral change strategies exist that have been proven to reduce HIV transmission, such as increasing condom use and condom negotiation tactics, those strategies alone have not been sufficient in reducing HIV rates in Black women (Hall, 2013). In 2012, the US Food and Drug Administration [FDA], (2012) approved PrEP, a once daily oral biomedical prevention intervention proven highly effective in reducing HIV transmission in high-risk groups. However, PrEP adoption among AA women has been slow, and research examining factors influencing the slow adoption of PrEP is limited. Because African American women continue to be disproportionately impacted by HIV infections despite an increased focus on prevention efforts targeting this group, PrEP should be considered as an effective prevention strategy in addition to traditional prevention methods.

## **Research Questions**

The purpose of this study is to examine the association between psychosocial factors of HIV, HIV risk perception, and Intent to use PrEP as an HIV prevention strategy among AA women living in the southern portion of the US. Because the relationship between actual behavior and behavioral Intent is difficult to measure, psychosocial factors will be analyzed as proximate measures of behavioral Intent to use PrEP. Sociodemographic variables will also be analyzed in an effort to determine the effects, if any, on PrEP uptake among this group. Primary research questions for this study include:

Question One: Is there a relationship between Sociodemographic factors such as education, income, and marital status and Intent to use PrEP as an HIV prevention strategy among AA women in the southern US?

Question Two: Is there a relationship between Perceived HIV Risk Perception and Intent to use PrEP as an HIV prevention strategy among AA women in the southern US?

Question Three: Is there a relationship between Self-Efficacy to adopt HIV protective behaviors and Intent to use PrEP as an HIV prevention strategy among AA women living in the southern US?

Question Four: Is there a relationship between Attitudes toward condoms and the Intent to use PrEP as an HIV prevention strategy among AA women in the southern US?

Question Five: Is there a relationship between Stereotypes about HIV/AIDS and the Intent to use PrEP as an HIV prevention strategy?

### **Hypothesis**

The following hypotheses have been developed to address the research questions of this study:

H<sub>0</sub> 1: There is no statistically significant difference between Sociodemographic factors such as education, income, and relationship status and Intent to use PrEP among AA women in the southern US.

H<sub>0</sub> 2: There is no statistically significant predictability between Perceived HIV Risk and Intent to use PrEP among AA women in the southern US.

H<sub>0</sub> 3: There is no statistically significant predictability between Self-Efficacy to perform HIV protective behaviors and Intent to use PrEP among AA women in the southern US.

H<sub>0</sub> 4: There is no statistically significant predictability between Attitudes toward condoms and Intent to use PrEP among AA women in the southern US.

H<sub>0</sub> 5: There is no statistically significant predictability between Stereotypes about HIV/AIDS and Intent to use PrEP among AA women in the southern US.

### **Delimitations**

Delimitations outlined for purposes of this research include females between the ages of 18 and 65 who self-identify as African American, living in one of the 16 states and 1 district that comprises the southern US (Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia).

### **Limitations**

Secondary data will be analyzed to examine the independent and dependent variables. Limitations include accuracy of the secondary data as well as the non-probability sampling technique used (snowball). Additionally, only African American women in the southern US were assessed. Therefore, findings can only be generalized to



that population. Lastly, the survey was disseminated electronically, which could limit participant access to the survey.

### **Assumptions**

Assumptions are that all participants answered the survey items truthfully and based on their own views and experiences, that study participants were comfortable sharing personal and sexual information, and that all participants understood English, the language of the survey.

### **Definition of Terms**

African American: Of or relating to an individual, a group, or a population identifying themselves as Black Americans.

Biomedical prevention strategy: A prevention strategy employing the use of both medical and public health approaches to block infection, reduce infection, and reduce susceptibility to a disease, such as the use of antiretroviral therapy to decrease HIV.

HIV protective behavior: Precautions that are taken to diminish the likelihood of contracting or transmitting HIV.

Perceived risk: An individual's belief about the probability of getting a condition and about how serious that condition and its consequences are, such as contracting HIV.

Psychosocial factor: The interrelation of an individual's facts and experiences, thoughts, and their social environment, which often influences attitudes, personality, lifestyle, and behavior.

Self-efficacy: An individual's belief in their confidence to adopt, implement, and sustain a behavior change, such as HIV protective behaviors (condom use, HIV testing, minimizing multiple sexual partners).

Serodiscordant: Couples in which one is HIV positive and the other is HIV negative.

Stereotype: An oversimplified thought or belief about something that may or may not reflect reality.

Stigma: An attribute based on the views of society that demoralizes an individual, group, and/or communities manifested by prejudice, stereotyping, or discrimination.

### **Importance of Study**

Despite targeted social and behavioral HIV prevention efforts, existing research indicates that traditional methods alone, such as increasing HIV awareness and condom use, have not been as effective for Black women (Jipguep, Sanders-Philipz, & Cotton, 2004). Prior approaches assumed that providing information on how HIV is transmitted and prevented would have a positive impact on HIV protective behavior, despite empirical evidence indicating that HIV knowledge alone does not translate into sexual protective behavior (Paxton, Villarreal, & Hall, 2013). Additionally, methods such as condom use are highly dependent on male cooperation, negatively impacting female influence on this HIV protective method (Wingood, et al., 2013). PrEP, a form of biomedical prevention, is a once daily oral regimen proven effective in preventing the

spread of HIV among high-risk groups. AA women can take the drug independently and discreetly without the approval or cooperation of a male sexual partner (Wingood, et al., 2013). However, that being said, PrEP adoption among AA women has been slow, and research examining factors influencing the slow adoption of PrEP is limited. What we do know is that AA women do not perceive themselves to be at risk for contracting HIV (Paxton, Williams, Bolden, Guzman, & Harawa, 2013; Paxton, Villarreal, & Hall, 2013; Young, Salem, & Bybee, 2010), and reasons for this lack of perceived risk are complex (Sharpe et al., 2012). Because the spread of HIV is preventable, and because African American women continue to be disproportionately impacted by HIV infections, PrEP should be considered as an effective prevention strategy in addition to traditional HIV prevention methods. Oral PrEP, specifically Truvada, is one of those prevention strategies, clinically proven to reduce the risk of HIV transmission in high-risk groups. Findings from this research should contribute to the existing body of knowledge seeking to understand influencers of sexual protective behaviors among AA women and should also be used in the development and implementation of successful HIV intervention strategies for Black women.

## CHAPTER II

### LITERATURE REVIEW

Despite proven prevention efforts, advances in testing, and improved treatment options for HIV, there continues to be distinct and documented racial disparities in HIV transmission rates among African Americans in the United States (Paxton et al., 2013; Adimora, Schoenbach, & Floris-Moore, 2009; Stampley et al., 2005). According to the Centers for Disease Control and Prevention (2015d), the most severe burden and the highest proportion of new Human Immunodeficiency Virus infections and Acquired Immunodeficiency Disease related complications are among the African American population, compared to other racial and ethnic groups. Reducing such disparities has been part of the strategic goals for organizations such as the CDC since early 2000 (An, Prejean, & Hall, 2012). In an effort to accomplish this goal, in 2007 the CDC developed a comprehensive plan which would assist in identifying needs and provide valuable information on prevention, care, and treatment to both public and private entities (CDC, 2007). However in 2010, African Americans represented 44 percent of all new HIV infections, despite comprising only 12 percent of the US population (CDC, 2014a; Kaiser Family Foundation, 2014a; USDHHS, 2013). The CDC (2014a) estimates that, at some point in their lifetime, 1 in 16 African American men and 1 in 32 African American women will become infected with HIV.

A subset of the African American population showing disproportionate increases in HIV infection rates is African American women (Young et al., 2010). According to reports published by the Department of Health and Human Services Minority Health Division, in 2010, African American women were 23 times more probable to contract HIV than White women, and they were 15 times as likely to succumb to HIV and AIDS complications compared to females of other racial groups (USDHHS, 2013). At the onset of the epidemic in the US, gay and bisexual men were the most impacted by HIV, and many prevention and intervention strategies to decrease HIV transmission among this high-risk group were designed and implemented with proven success. However, HIV prevention efforts did not adjust over time to the change in the epidemic's impact in demographics (Fitzpatrick, Sutton, Greenberg, & Georgia, 2006). The encouraging news is that HIV transmission is preventable (CDC, 2015b). Increasing awareness about the spread of HIV/AIDS, recommended HIV testing, and proper use of condoms continue to be the most effective tools in decreasing the spread of the virus (CDC, 2014b). In fact, many proven behavioral intervention and prevention strategies researched by the CDC, targeting high-risk groups, have been developed based on those tenets (CDC, 2015c). The disappointing news is that the effectiveness of the aforementioned prevention strategies has not shown the expected results in the AA population, indicating the need for expansion of HIV prevention and reduction interventions that go beyond traditional approaches of the past (Knudsen et al., 2008) and move forward towards a more collaborative approach (Aral, Adimora, & Fenton, 2008). Collaborative programs that

combine traditional efforts, such as condom use, with current evidence based interventions, such as biomedical interventions, are needed in an effort to institutionalize more effective strategies among disparate groups (Mannell, Cornisch, & Russell, 2014).

For the most part, traditional HIV prevention efforts have not adequately addressed factors contextual to the African American population (McNair & Prather, 2004). This oversight has resulted in a gap in programs and services designed to identify and address behavioral risk associated with these factors, which ultimately impact the burgeoning problem of HIV in the Black community (Fitzpatrick et al., 2006). High-risk sexual behavior has been shown to be the most common mode of HIV transmission among groups (Williams, Wyatt, & Wingood, 2010). Among AAs specifically, it is high-risk heterosexual behavior that is associated with increased HIV transmission (Winningham et al., 2004).

In 2012, the FDA approved oral PrEP, a biomedical prevention intervention proven highly effective in reducing HIV transmission in high-risk groups (FDA, 2015; Wingood, et al., 2013). Before PrEP, condoms were the most effective means of preventing HIV transmission in heterosexual women (Pulerwitz, Amaro, DeJong, Gortmaker & Rudd, 2002). Condoms remain one of the most effective methods of HIV prevention; however, they cannot provide absolute protection against HIV or any STI (CDC, 2013). Yet condom compliance primarily depends on male approval and cooperation (Paxton, Villareal, & Hall, 2013; Wingood, et al., 2013). Oral PrEP, a once daily, oral medication, can be taken discreetly and covertly by the female partner as an

additional means of protection from HIV without the consent of a male partner. The drug must be prescribed by a physician and can only be prescribed after receiving a confirmed, negative HIV test. Those taking the prescribed oral regimen are recommended to have a follow-up HIV test, and liver and renal function tests every three months as part of the medication maintenance regimen (CDC, 2014b)

Despite its proven effectiveness, PrEP adoption among Black women has been slow. Because African American women continue to be disproportionately impacted by HIV infections despite an increased focus on prevention efforts targeting this group, oral PrEP should be considered as an effective prevention strategy in addition to traditional prevention methods. That being the case, a more thorough and detailed explanation of influential factors associated with risky sexual behaviors and adoption of oral PrEP as a biomedical intervention strategy in African American women must be understood as there are limited studies assessing PrEP uptake among Black women.

## **HIV/AIDS**

Human Immunodeficiency Virus, the virus that causes AIDS, is the causative agent identified as one of the nation's most devastating and deadly infectious diseases in recent history (Sharp & Hahn, 2011). The retrovirus, now referred to as HIV type 1 (HIV-1), was initially recognized in the early 1980s as a result of an increasing number of homosexual men becoming ill due to opportunistic infections because of poor and weakened immune systems (Sharp & Hahn, 2011). The HIV virus attacks, destroys, and depletes specific cells responsible for immunity, called CD4 or T cells, and over a period

of time, this phenomenon renders the body incapable of fighting off infections and diseases (World Health Organization [WHO], 2014). HIV-1 is not just one virus but consists of four distinct and separate lineage subtypes. The HIV viral subtypes include group M, Group O, Group N, and group P. Group M, which has been found in every county in the world, was the first subtype to be discovered and is the group that is responsible for the current pandemic form of HIV (Sharp & Hahn, 2011). Ultimately, the destruction of CD4 cells by the HIV virus to the level of  $<200$  cells/ $\mu$ L, or CD4 percentage  $<14\%$ , (AIDS Education and Training Centers [AETC], 2014) results in the body's inability to fight off infections can lead to AIDS, the most advanced stage of HIV infection (CDC, 2014c). There is also HIV type 2, which is transmitted in the same way and is clinically similar to HIV type-1. However, type 2 is primarily found in West Africa in lower rates than HIV-1 (Sharp & Hann, 2011).

Currently, there are several tests available on the market today to confirm whether an individual has contracted the HIV virus. HIV testing can be conducted on blood or oral fluids, depending on the type of HIV tests. Earlier HIV tests detected HIV antibodies produced by the body against the virus, which could take 12 weeks to 6 months to show up in the blood of an infected person. Newer testing methods can detect HIV antigens and antibodies in the blood in as few as 3 weeks post exposure to the virus and there are even tests that will provide preliminary results in a few as 30 minutes (USDHHS, 2015). Routine HIV testing is widely available and recommended for all people 13-64 years of age (CDC, 2014b). Not only is routine testing for the HIV virus recommended, it has



been proven effective in successful prevention and treatment efforts as well as decreasing transmission (KFF, 2013; CDC, 2012; Hosseinzadeh & Hossain, 2011).

### **HIV/AIDS- A Global Issue**

HIV and AIDS are significant public health issues. Since their discovery in the 1980s, more than 75 million people have been infected globally; 36 million have died from HIV, and nearly 2 million have died from HIV/AIDS related illnesses (WHO, 2014). At the end of 2012, there were approximately 35 million people living with HIV globally, and 0.8 percent of those were between 15 and 49 years of age (WHO, 2014). Countries and regions are variably affected by the virus. Sub-Saharan Africa remains the most severely affected part of the globe, where 1 in every 20 adults has HIV (WHO, 2014).

### **HIV/AIDS in the United States**

Despite stable to declining HIV incidence rates in the United States from its peak in the 1980s (KFF, 2014; CDC, 2013), HIV prevalence and new HIV infections remain high. Currently, there are more than 1 million people living with HIV in the United States and one in six people are completely unaware of their HIV status (CDC, 2013). According to the National HIV/AIDS Strategy for the United States (2010), one person becomes infected with HIV 9.5 minutes, and evidence suggests that there are an estimated 50,000 new HIV infections annually (KFF, 2014). In 2011, 49,273 people in the US were diagnosed with HIV and another 32,000 were diagnosed with AIDS. In

2010, there were nearly 16,000 deaths in the US from HIV/AIDS, and to date, there have been approximately 636,000 AIDS related deaths in the US (CDC, 2013).

### **Population Disparities and Other Risk Factors**

Some groups in the US are more severely impacted by HIV and AIDS than others. The disease appears to have a disproportionate impact on gay and bisexual men, injection drug users, certain ethnic and minority groups, and heterosexual men and women (KFF, 2014).

#### **Gay and Bisexual Men**

Men who have sex with men (MSM) are the group most impacted by HIV (CDC, 2012). A study conducted in 20 major cities in the United States, among MSM who participated in the 2008 and the 2011 National HIV Behavioral Surveillance System (NHBS), revealed that one in five MSM were already living with HIV (Wejnert et al., 2013). The CDC (2015f) reports that while MSM represent only 4 percent of the male population, in 2010 there were 29,800 new HIV infections reported in this group. This represents a 12 percent increase from 2008. Additionally, in 2010, MSM accounted for 78 percent of new HIV infections among all males and 63 percent of all new HIV infections. Within the MSM population, White MSM represent the largest new HIV infection rate, with 11,200 infections, followed by Black MSM, with 10,600 new infections, and Hispanic MSM, with 6,700 new infections. HIV/AIDS reportedly claimed

the lives of nearly 6,000 MSM in 2010 and a total of 302,148 since the discovery of the disease (CDC, 2015f).

### **Injection Drug Users**

Although the spread of HIV from injection drug use (IDU) has decreased since the 1980s, this mode of transmission continues to be the cause of a considerable number of new HIV infections in the US (Strathdee & Stockman, 2010). Historically, injection drug users were vulnerable to contracting HIV as a result of sharing contaminated needles, syringes, and other drug paraphernalia. However, in recent years IDU has become a threat to non-users who risk contracting the virus through heterosexual contact (Strathdee & Stockman, 2010). According to the CDC, in 2010 IDU was the cause of 8 percent of new HIV infections. In that year, men accounted for 62 percent of those cases and women followed with 38 percent (CDC, 2015g). From 2004-2007, Blacks accounted for more than half of the nearly 153,000 HIV infections from IDU reported in 34 states in the US compared to 21.4 percent of Whites, 19.1 percent of Hispanics, and less than 1 percent of American Indians, Alaskan Natives, Asians, Native Hawaiians, and other Pacific Islanders (Strathdee & Stockman, 2010). Since the epidemic began, there have been approximately 187,000 deaths of injection drug users diagnosed with AIDS; 4,200 of those deaths were reported in 2010 (CDC, 2015g).

## **Race, Ethnicity, and HIV Transmission**

Currently, African Americans and Latinos are the most adversely affected by HIV of all racial groups relative to size (CDC, 2014a; KFFb, 2014). While representing only 12 percent of the total US population in 2010, AAs represented 44 percent of new HIV infections in that same year (CDC, 2015a). Latinos, representing only 17 percent of the US population in 2010, also represented increased rates of HIV compared to Whites, Asians, and other groups. That year, Latinos represented 21 percent of new HIV infections, with Latino males having nearly 3 times more risk for contracting HIV than White males and Latina females were 4 times more likely than White females to contract the virus (CDC, 2015a).

Based on the historical and current transmission rates, and unless there is an increase in prevention efforts with measured success, 1 in 16 African American men and 1 in 32 African American women will be diagnosed with HIV in their lifetime (CDC, 2013). Empirical literature suggest that a primary reason for the increasing rates of new HIV infections among Black men and women is the lack of perceived HIV risk (Hall, 2013). Additionally, Black men and women do not believe their personal sexual behavior to be risky. This perceived low-risk perception coupled with high-risk sexual behavior actually places them at higher risk which perpetuates further HIV transmission within the group (Khawcharoeporn, Kendrick, & Smith, 2012).

## **Heterosexual HIV Transmission**

Heterosexual HIV transmission has surpassed injection drug use since the year 2000 (Bowleg, Lucas, & Tschann, 2004) and is the primary mode of transmission among women (CDC, 2015d; Mallory, 2008). In the United States, one in every three new HIV infections is transmitted by heterosexual contact (Mortality and Morbidity Weekly Report [MMWR], 2011). In 2010, the HIV transmission rates of both heterosexual men and women were 25 percent of all new HIV infections (CDC, 2012).

Of newly diagnosed HIV cases annually among heterosexual men and women, women are contracting HIV at alarming rates and currently constitute the fastest growing population of new HIV/AIDS infections (Theall, Elifson, Sterk, & Klein, 2003). In 2010, women made up 20 percent of all new HIV infections, and that same year, 84 percent of those were reported in women who contracted the virus through heterosexual sex (CDC, 2014a). At the time of a Kaiser Family Foundation Report published in 2013, there were nearly 300,000 women living in the United States with HIV (KFF, 2014b). When comparing race/ethnicity and gender, African American women represent the fourth largest group of all new HIV infections. African American women were reported to account for 29 percent of new cases in the US among adults and adolescents in 2010, many cases resulting from sexual contact with a male partner (CDC, 2015e). Since the beginning of the HIV epidemic in the 1980s, HIV/AIDS and related complications have claimed the lives of more than 80,000 men and women that acquired the HIV virus through heterosexual sex (CDC, 2013).

## **Geographical Impact on HIV Transmission**

Not only can alarming rates of HIV transmission be highlighted in terms of race and gender, but geographical state of residence may also be a factor (Aral et al., 2008). In 2010, 46 percent of all new HIV infections occurred in the southern US (Prejean et al., 2013). The southern region, referred to as the “South,” consists of 16 states and 1 district (US Census Bureau, 2014). They include the District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, West Virginia, Virginia, Delaware, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, and Texas. The South is comprised of the largest percentage of the total US population, with Blacks and AAs accounting for 18.5 percent of that compared to 8.2 percent of the population in the rest of the United States (Prejean et al., 2013). Southern states have some of the highest poverty rates and several of them have the worst health, as indicated by many leading health indicators including HIV (Reif, Whetten, Wilson, McAllaster, Pence, Legrand, & Gong, 2014), resulting in some of the highest HIV mortality and morbidity rates of the entire US (Reif, et al., 2014). This is primarily due to little to no access to disease prevention and healthcare (KFF, 2014; Aral et al., 2008). Compared to other regions in the US, HIV diagnosis in the South was highest among women (23.8 percent), African Americans (57.2 percent), heterosexual men (15 percent), and heterosexual women (88.5 percent) (Prejean et al., 2013).

## **HIV Associated Risk Factors among African American Women**

Despite overall declining HIV rates in the US, HIV rates among women are on the rise. Epidemiological evidence shows that at the end of 2011, 23 percent of those living in the US with HIV were women (CDC, 2014a). But not all women are impacted equally. The virus affects AA women far more than women of other racial and ethnic groups (KFF, 2014; CDC, 2013; Sharpe et al., 2012; El-Bassel, Caldeira, Ruglass, & Gilbert, 2009), and the disease is a significant cause of morbidity and mortality among this population (Amutah, 2012). While there are traditional, comprehensive, gender specific HIV interventions designed and implemented to address female awareness of HIV, HIV risks, and HIV protective behaviors (Jipguep et al., 2004), the continued increase in HIV rates among Black women indicate that these programs do not address influencing factors specific to HIV risks in Black women (El-Bassel et al., 2009). There is empirical evidence to indicate strong associations between HIV risks and sociodemographic factors (Pulerwitz et al., 2002), as well as associations between HIV risks and psychosocial factors (Roy, Mahapatra, Bhanot, Kapoor, & Narayanan, 2012) that shape the lives and psychological functioning of Black women. These factors are believed to negatively influence the HIV epidemic among Black women in the US (El-Bassel et al., 2009).

In an effort to develop population specific HIV prevention and intervention programs that are effective in decreasing HIV rates among AA women, a deeper understanding of the cumulative, influential, and complex social and behavioral factors

among this group must be realized (Advocates for Youth, 2008; Mallory, 2008; Jipguep et al., 2004).

### **Sociodemographic HIV Risk Factors**

Sociodemographics, a combination of social and demographic factors (Merriam-Webster Inc., 2015), can have a major influence on behavioral choices, and certain behavioral choices can put one at risk of disease or harm (McNair & Prather, 2004). For AA women, the sociodemographic realities experienced on a daily basis can have a negative impact on their lives by increasing the probability that they will become exposed to HIV (Sharpe et al., 2012) and decreasing the probability that they will engage in sexual health protective behaviors such as using a condom. According to research, some of those include marital status, poverty, income equality, racial segregation, and access to healthcare (Buot et al., 2014).

African American women are less likely to get married compared to other racial/ethnic groups (US Bureau of Labor Statistics, 2013; Sharpe et al., 2012). Buot et al., (2014), in a study assessing social determinants of HIV disparities in 80 US cities, discovered that marriage rates were highly correlated with HIV transmission, and cities analyzed in the study with lower marriage rates experienced HIV infections at rates four times higher than cities with higher marriage rates. Research indicates that a major contributing factor to low marriage rates in AA women is the imbalanced ratio of African American females to African American males (Buot et al., 2014; Adimora & Schoenbach, 2005). This imbalance results in there being fewer AA male options for AA



women (Shape, et al., 2012), ultimately leading to concurrent relationships in the Black community (Adimora et al., 2013). Concurrent relationships involve having more than one sexual partner overlapping in time and have important implications in HIV transmission (Adimora, Schoenbach, Martinson, Donaldson, Stancil, & Fullilove, 2003). These overlapping sexual relationships result in the development of sexual networks: a group of people directly or indirectly linked through sexual contact (Adimora & Schoenbach, 2005). These conditions not only increase the risk of contracting HIV but also increase the speed at which the HIV virus is spread among groups (National Alliance of State & Territorial Aids Directors [NASTAD, 2008]). Adimora and Schoenbach (2005) reported in a population control study of heterosexual HIV transmission among Blacks in South Carolina a higher prevalence of concurrent relationships among Black men of 53 percent compared to 31 percent in Black women. Results of the study also revealed that Blacks in South Carolina that had recently reported having been diagnosed with HIV had an even higher five-year sexual concurrency rate of 60 percent.

Poverty among African Americans is well chronicled (Aral et al., 2008), and there is strong evidence that indicates an association between poverty, income inequality, and HIV risk (Raj & Bowleg, 2012; Sharp, et al., 2012). According to the US Department of Commerce (2014), 45.3 million people lived in poverty in 2013. That year, the median annual household income in the US was approximately \$52,000; however, Blacks had the lowest average income of all races. The average income of Blacks in the US was \$34,500 compared to Asians, Whites, and Latinos earning, annual salaries of \$67,000, \$55,000,

and \$41,000 respectively. The median income for women was lower than that of men: \$39,000 compared to \$50,000. Median incomes are also lower in the southern US. In 2013, the average annual income in the South was \$48,000 compared to \$56,700 in the Northeast, \$52,000 in the Midwest, and \$56,100 in the western United States (US Department of Commerce, 2014). African American women are more likely to make less money than White women and all men, and they are twice as likely as their White female counterparts to suffer unemployment (Bureau of Labor Statistics, 2013). While being paid less for the same amount of hours worked, Black women are also more likely to bear the economic costs of pregnancy and raising a family alone (Sharpe et al., 2012; NASTAD, 2008). The result is poorer health outcomes and diminishing health status for the AA female population (Jipguep et al., 2004).

Poverty and income are associated with urban residency and racially segregated areas where HIV prevalence rates are high (Adimora, Schoenbach, & Moore, 2009; Shelton, Cassell, & Adetunji, 2005). The amount of income earned is a significant driver of where an individual can afford to live and anything that is correlated with where one lives (Aral et al., 2008). Because AA women are more likely to experience disparities in income and wealth, they are also more likely to live in low-income, urban, impoverished areas where education levels are low and where drug and alcohol abuse, homelessness, crime, and incarceration rates are high (Buot et al., 2014; Laurencin et al., 2008; McNair & Prather, 2004). It is in these areas that HIV/AIDS and other STIs tend to be clustered (Sharp, et al., 2012; Robinson & Moodie-Mills, 2012). In fact, research has shown that

urban impoverished areas in the US have HIV prevalence rates of other low-income countries in Africa that are experiencing HIV at epidemic proportions (Buot et al., 2014; Robinson & Moodie-Mills, 2012).

Those living in marginalized societies with fewer financial resources also face barriers to healthcare or no access to healthcare treatment at all (An et al., 2008). As a result, those without healthcare insurance are also more likely to postpone seeking physician care and treatment, oftentimes due to competing priorities (Laurencin et al., 2008) such as food and shelter. This can be detrimental to those with HIV as early detection is critical and delayed diagnosis of the virus is highly associated with poor treatment response and lower survival rates (CDC, 2014b). It also has a negative impact on the prevention of transmission of the virus and is a determinant of HIV incidence and prevalence rates in the community (Aral et al., 2008).

### **Psychosocial Factors, Sexual Behavior, and HIV Risk**

Historically, sexual risks among women have been measured in terms of high-risk sexual behavior, such as the number sexual partners, inconsistent condom use during sexual intercourse, whether the male sex partner has a history of intravenous drug use, or if their male partner has a history of having sex with men (Stampley et al., 2005). Sex in exchange for money, sexual concurrency, and sex with a male partner who has been incarcerated are also risky behaviors that have been assessed as correlates of HIV transmission risk among groups (Wingood, Dunkle, Camo, Patel, Painter, & Rubtsova et al., 2013). There is a growing body of evidence that now suggests that psychosocial

factors have a significant association with HIV risk behavior, and many studies have documented a positive effect of some psychosocial correlates and HIV (Roy et al., 2012). Several of these factors are central to many psychosocial theories related to health behaviors, and those theories suggest that a person's behavior is an indication of that individual's intention to perform a health behavior (Conner & Norman, 1995a). Examples of the psychosocial factors are perceived risk, attitudes, self-efficacy beliefs, and HIV/AIDS stigma (Roy et al., 2012; Conner & Norman, 1995b). Because Black women continue to be disparately impacted by HIV, a better understanding of psychosocial risk variables that influence sexual behavior and sexual decision-making unique to AA women must be identified and understood.

### **Perceived Risk**

Many African American women perceive their HIV transmission risk as low although they engage in high-risk behaviors, which put them at extreme risk for contracting HIV (Hall, 2013). Perceived risk is a central construct to many health behavior theories (Brewer, Weinstein, Cuite, & Herrington, 2004), and according to the Health Belief Model (HBM), an individual's perceived risk is believed to influence individual behavioral choices (Glanz, Rimer, & Lewis, 2002), and one's behavioral choices are believed to influence their risk perception (Jackson, Early, Myers-Schim, & Penprase, 2005; Brewer et al., 2004; Ward, Disch, Levy, & Schensul, 2004; Theall et al., 2003; Plight, 1998; Kowalweski, Henson, & Longshore, 1997). Perceived risk, or the threat of acquiring a condition, is comprised of two aspects. The first is perceived

susceptibility, one's belief in the probability of acquiring a condition or illness, and the second is perceived severity, one's belief in the severity of a condition and/or its consequences. According to theoretical frameworks, those who recognize that their behavior choices increase their risk for acquiring a disease or illness will likely adopt a protective, less risky behavior (Hall, 2013). However, the presence of perceived susceptibility and perceived severity to the exclusion of social factors unique to an individual's decision-making may impact the accuracy of one's risk perception resulting in flawed assumptions and lowered risk perceptions (Kowalewski et al., 1997).

One well-defined risk associated with increased HIV rates in AA women is heterosexual sex with male partners (CDC, 2014a; Misovich, Fisher, & Fisher, 1997). Heterosexual sex is perceived by AA women to be an HIV risk mediator, which is not an accurate assumption (Stampley et al., 2005). At the start of the HIV epidemic in the US, HIV/AIDS was considered to be a gay, White man's disease (Health Resources and Services Administration [HRSA], n.d.); therefore, the belief among Black women was that HIV was not a major concern for them. In 2010, Black women represented nearly 30 percent of all new HIV infections reported in the US and most of those were due to heterosexual contact (CDC, 2014a). According to the CDC and other research, heterosexual contact is the primary mode of HIV transmission in Black women (CDC, 2014a; Paxton, Williams, Bolden, Guzman, & Harawa, 2103) and has now surpassed HIV transmission rates from intravenous drug use as the leading cause of HIV transmission among this group (Young et al., 2010). Still, despite these alarming facts,

literature suggests that African American women are not concerned about contracting HIV (Paxton, Williams, Bolden, Guzman, & Harawa, 2013) or they believe that their risk of contracting HIV is low (Paxton, Villareal, & Hall, 2013; Young et al., 2010; Theall et al., 2003).

In a rapid HIV testing program launched in Philadelphia between 2007 and 2009, 5,871 men and women were tested for HIV and questioned about HIV risk (Nunn et al., 2011). Risk was assessed based on drug and alcohol use, number of sexual partners, gender of sexual partners, and condom use history. The majority of those tested self-reported as African American (88 percent). Of those tested, 2,466 self-reported as African American male and 2,695 self-reported as African American female. The mean age of all respondents was 34.7 years. Results of the study revealed that approximately 85 percent of men and 88 percent of women self-reported a perceived risk of HIV infection as zero or low despite the fact that more than 33 percent of women and 27 percent of men reported *never* using a condom during sex; 55 percent of men and women did report using condoms but used them inconsistently; 5 percent of men and 11 percent of women reported exchanging sex for drugs or money; and nearly 16 percent of men reported having more than 5 sexual partners in the previous 12 months. Additionally, the majority of the more than 5,800 tested and surveyed self-identified as heterosexual (Nunn et al., 2011). Data such as this indicates a true disconnect between actual risk and perceived risk (Paxton, Villarreal, & Hall, 2013).

In a study conducted to construct descriptions from AA female participants about how they contracted HIV, results indicated that an inaccurate risk assessment was a contributing factor to their HIV infection (Mallory, 2008). Participants were recruited from a pool of women who were AA, at least 18 years of age, and lived in a city with a population of 20,000 or less. The women were relegated to poverty, had a history drug use, and were infected with HIV. A total of 18 interviews were conducted with 10 women. All of the women indicated that they were exposed to HIV by a male. Some of the men were intravenous drug users and/or had been having sexual relationships with other men or women. Based on participant interviews and reported personal and sexual behavior, the women were categorized into two groups as a result of their differences in engaging in high-risk activity. The two categories were 1) those who engaged in multiple high-risk activities, and 2) those that were unlikely to engage in high-risk activity.

Most of the women did not engage in high-risk behaviors. Seven of the women in the study reported being in long-term relationships. These women were either married or cohabitated with their male partner. For those reasons, those seven were positive of who they had contracted the virus from. These seven women also reported that they did not perceive themselves to be at risk for contracting HIV. They believed that serial monogamy, limiting the number of sexual partners, and abstaining from drugs and alcohol would protect them from contracting HIV. The women also reportedly believed that their partners would protect them from getting a sexually transmitted disease. The other three women in the study were involved high-risk sexual behavior, such as sex-

trading activity, and those three were unsure of whom they contracted the virus from. Although the women were categorized into groups based on their differences in risk levels, what all the women had in common is the engagement in unprotected heterosexual contact with their primary partner. Researchers have found that heterosexual adults use condoms less frequently with a primary partner (Misovich, Fisher, & Fisher, 1997). This fact coupled with inadequate HIV risk assessment skills of Black women in heterosexual relationships with their male sexual partners is a key factor in rising HIV rates within this populations as well as a primary contributing factor to the HIV infections of women in the study. Essentially, African American women are at risk primarily due the behavior of their male partners who engage in high-risk activities (Stampley et al., 2005).

### **Self-Efficacy**

Self-efficacy is defined as an individual's confidence in their ability to perform a behavior and to overcome barriers to those behaviors (Glanz et al., 2002). Self-efficacy is a common construct of many social science and behavioral theories and is essential in the adoption of health protective behaviors. According to Bandura's Social Learning Theory, the skills and incentives to perform a behavior will determine an individual's choice of the behavior, the amount of effort exerted to perform the behavior, and how much time the individual will persist when faced with challenges to the behavior. Bandura also suggests that before a risky behavior change is even contemplated, it is crucial for an individual to have belief in their ability to control and regulate their behavior (Glanz et al., 2002). If one's self-efficacy is low, the likelihood of at-risk individuals adopting



and/or achieving protective behavioral goals is low. On the other hand, if one's self-efficacy is high, that likelihood of success in adopting a behavior is greater (Conner & Norman, 1995b).

Research has shown that some African American women do not believe they possess the levels of self-efficacy required to practice safe sex behaviors because of lack of authority and control over sexual decisions (Mize, Robinson, Bockting, & Scheltema, 2002. Ferguson, Quinn, Eng, and Sandelowski (2006) interviewed 31 African American college students in a qualitative study conducted to explore social and cultural aspects of campus dating and HIV/AIDS behaviors, the students' perceptions of their susceptibility to HIV, and gender differences related to condom negotiations. A consistent theme emerged from the four focus groups. There was a noticeable male-female ratio imbalance on campus, more females than males intimating that males had more sexual partners than females. As a result, the females on campus felt they had less power to negotiate safe sex practices. They also felt compelled to comply with the male's sexual behavior choices, such as whether or not to use a condom. Respondents reported feeling that introducing a condom into the relationship would lead to negative reactions of the male partner. Additionally, because of this sex-ratio imbalance, women on campus feared the loss of a relationship to another woman, which led to further sexual compliance of the male partner. In contrast, in a study conducted among AA students from a Historically Black College/University in the southeast (HBCU), students who showed high self-efficacy

levels for safe sex practices had high condom usage reported within the previous six months (Burns & Dillon, 2005).

In another study conducted to examine psychosocial factors of HIV related sexual risk factors among clients of female sex workers (FSWs), a cross-sectional survey was used to collect data from 2,382 clients of FSWs in India. Multiple regression models were used to assess the effect of psychosocial measures on HIV risk factors including multiple sex partners, inconsistent condom use, and STIs. In the study, perceived self-efficacy for condom use was measured using a 12-item instrument asking questions regarding difficulty disposing of condoms after use, hesitancy buying condoms, whether or not participants felt like they would remember to use condoms if under the influence of alcohol, and if they would remember to use condoms when excited. Results of the survey indicated that inconsistent condom use and STI symptoms in the study group was higher among individuals with low self-efficacy (Roy et al., 2012). Although the study was conducted on men, it speaks to the importance of self-efficacy in utilizing self-protective measures and inherent risk of the primary female sexual partners who are placed at increased risk due to the high-risk behavior of the male sexual partners (Stampley et al., 2005).

Self-efficacy is vitally important in one's ability to properly implement protective practices such as proper condom use. A study was conducted in two cities located in the southeast US to assess self-efficacy to practice safer sex behaviors among single adults, between the ages of 50 and 74 years old, who were sexually active by self-report and

HIV negative (Foster, Clark, Holstad, & Burgess, 2012). The group (n=106) was almost evenly divided by gender and 84.9 percent were African American. Utilizing the Safer-Sex Self-Efficacy (SSE) Scale and the Condom Application Confidence Scale, participant confidence to acquire and use a condom and confidence in the proper use of condoms were measured. Behavioral skills such as the ability to properly apply a condom were also measured by using a ten-card sorting method. Mastery of the behavioral skill required the applicant to properly place each card, which contained an ordered step, into the correct condom application sequence. Results of the study revealed an interesting dichotomy. While most participants reported high levels of self-efficacy to practice safe sex, high levels of perceived effectiveness to perform safe sex behaviors, and high levels of confidence in the ability to properly apply condoms, only 26.4 percent of participants were able to master the card sorting exercise (Foster et al., 2012). In essence, participants reported adequate amounts of perceived self-efficacy while unknowingly being unable able to properly indicate proper condom use. These results indicate a true disconnect between the level of confidence and risks that are perceived and actual risk not realized.

Self-efficacy in one's ability to discuss sexual health issues with partners and healthcare providers is also important in the prevention of HIV transmission (Foster et al., 2012). Discussions with partners may elicit discussions about a partner's sexual history, past HIV testing, and discussions about condoms for protection (Stampley et al., 2005). Oftentimes, African American women will not inquire about their partners' sexual behavior (Paxton, Williams, Bolden, Guzman, & Harawa, 2013). When they do ask, there

is the possibility that the partner's sexual history will not be accurate (Benotsch et al., 2012), or the person may lie about their risk. The inability to discuss partner sexual history may be rooted in the perceived lack of self-efficacy, fear, or lack of empowerment, which is a barrier to sexual protective measures such as negotiating condoms (Knudsen et al., 2008). As a result, conversations about self-protective measures become non-existent, indirect, or passive and HIV protective measures (or the lack of) become relative to the relationship and not the risk (Lear, 1995).

In a study conducted on 18-25-year-old college students in southern California (n=665), of the 422 sexually active males and females, a considerable percentage reported having told a lie in order to have sex. Males in the survey reported telling lies more than females; however, when questioned about what their response would be in a hypothetical situation, both males and females reported that they would deceive a partner whom they were dating. Conversely, despite having knowledge of their partners' risky sexual behavior, African American women will often continue to engage in unprotected sexual activity with their partners (Paxton, Williams, Bolden, Guzman, & Harawa, 2013).

Conversations with healthcare providers allow for discussions regarding personal HIV testing, sexual risk reduction strategies, as well as current HIV prevention methods and treatment options. In the same study conducted by Foster et al., (2012), the Safer-Sex Self-Efficacy Scale was utilized to assess participants' confidence in engaging in discussions about sex-related issues. Half of the 106 participants reported having discussions about HIV with their healthcare provider and most reported feeling very

comfortable doing so. Only 6.6 percent reported feeling uncomfortable about discussing HIV with a healthcare provider.

### **Attitudes toward Condoms and HIV Risk**

Condoms are one of the most effective means of preventing the spread of HIV when properly used (Pulerwitz et al., 2002). To that end, it is essential that research efforts are focused on factors contextual to African American women that may impact negative attitudes toward condoms and influence low levels of condom use among this group (Paxton, Williams, Bolden, Guzman, & Harawa, 2013). One of the most significant predictors of condom use in African American women is relationship dynamics (Paxton, Williams, Bolden, Guzman, & Harawa, 2013; Paxton, Villarreal, & Hall, 2013; Young et al., 2010). Examples of those relationship dynamics include: partner preference, relationship dependency, fear of loss of a romantic relationships, AA male/female gender imbalances, sexual concurrency, and serial monogamy (Jipguep et al., 2004).

Black women prefer Black men as close relationship partners (Paxton, Williams, Bolden, Guzman, & Harawa, 2013). This preference however may increase the risk of exposure to HIV among AA women. This is because HIV rates are extremely high in African American men (Raj & Bowleg, 2012; McNair & Prather, 2004) and women are less likely to use a condom in close relationships (Winfield & Whaley, 2005; Pulerwitz et al., 2002). AA men are more likely to have sex under the influence of illicit drugs and/or alcohol, engage in extramarital affairs (Paxton, Williams, Bolden, Guzman, & Harawa, 2013), have concurrent sexual relationships, and engage in sexual activity with both men

and women (Raj & Bowleg, 2012; Gorbach, Murphy, Weiss, Hucks-Ortiz, & Shoptaw, 2009; Whyte, Whyte, & Cormier, 2008). Men who have sex with men or with both men and women have the highest rates of HIV/AIDS of any racial or behavioral risk group in the US (CDC, 2015d; Gorbach et al., 2009). Additionally, AA men are least likely to obtain HIV testing (Paxton, Williams, Bolden, Guzman, & Harawa, 2013).

In a recent qualitative study conducted to explore sexual behaviors and relationship characteristics utilized by African American women in relationships with AA men at risk for HIV (Paxton, Williams, Bolden, Guzman, & Harawa, 2013), interviews were conducted in focus groups. Open-ended questions were asked of 24 low-income AA women. Researchers hoped to gain insight into the experiences of being a Black woman and the use of condoms. Results of the study revealed that reasons for inconsistent condom use, from the AA female's perspective, included concerns about maintaining the relationship, substance use before and during sex, and secrecy about the male history of having sex with men and women. Women in the group also reported engaging in unprotected sexual activity while one or both partners knowingly had a sexually transmitted infection (STI) and stated that inconsistent condom use was common among both Black men and women. Participants in the study revealed that neither the risk profiles of themselves or their partners impacted their decision of whether or not they used condoms in the relationship (Paxton, Williams, Bolden, Guzman, & Harawa, 2103). In some cases, AA women continued to have unprotected sexual intercourse with a high-

risk male partner despite having knowledge of the behavior of their male partner (Paxton, Williams, Bolden, Guzman, & Harawa, 2013).

AA women are more likely to experience poverty and lower levels of education. These factors may result in the AA female becoming dependent on male partners for financial security and basic needs (Sharp, et al., 2012). In these instances, women may resort to using sex as a survival mechanism by trading sex for money, food, shelter, drugs, and/or alcohol (Young et al., 2010; Mallory, 2008; NASTAD, 2008). When faced with these choices, proposing the introduction of condom use into the sexual relationship can be a challenge, and more often than not, these sexual transactions occur without the use of condoms. This is often due to the perceived lack of self-efficacy to introduce condoms and/or the lack of condom negotiating skills of the female (Sharp, et al., 2012). Additionally, fear of the loss of the relationship may result in a woman's perception of loss of control to discuss sexual protective measures. When women do not feel that they have the power to make sexual decisions in a relationship, they feel forced to make negative decisions that impact their health, such as not insisting on condom use even if they perceive themselves at risk for acquiring HIV (Sharpe et al., 2012; Jipguep et al., 2004).

The imbalance of African American women and men is another relationship dynamic that indirectly influences attitudes toward, and the propensity to use, condoms among Black women. Williams et al. (2010) found that the imbalances among AA men and women are primarily the result of societal level issues that affect Black males.

Statistics have shown that AA men experience higher rates of incarceration where HIV rates are three to four times higher than HIV rates in the general population (Adams, Stuewig, Tangney, & Kashdan, 2014). Poor overall health, premature deaths, and increasing homicides among AA men are also contributing factors (William et al., 2010).

Because AA women have fewer male options, AA women believe that they have less interpersonal power in relationships to discuss and negotiate condom use; the concern with maintaining the relationship outweighs the concerns regarding self-protective behaviors (Paxton, Williams, Bolden, Guzman, & Harawa, 2103; NASTAD, 2008). Men are also believed to have primary control over condom use in heterosexual relationships (Bowleg et al., 2004). This fact is also believed to leave the female with feelings of less power and control over introducing protective sexual measures in these relationships (Paxton, Villarreal, & Hall, 2013; McNair & Prather, 2004).

Finally, relationship concurrency and serial monogamy are prevalent factors in the rapid spread of HIV in the African American community (Adimora & Schoenbach, 2005). Black men are more likely to engage in concurrent sexual relationships (Aral et al., 2008; NASTAD, 2008) while less likely to engage in consistent condom use (Frye et al., 2013). In a qualitative study conducted to inform the development of an intervention program that would decrease concurrent partnering and increase condom use among heterosexual AA men, partner concurrency was described as a natural desire of sex drive though respondents were void of the recognition of the impact it had on the transmission of HIV (Frye et al., 2013). Once an individual acquires HIV via a concurrent sexual



partner, additional partners may acquire the virus. This unprotected sexual activity places all sexual partners at risk for contracting HIV from known or unknown concurrent sexual relationships.

A less intuitive HIV risk is serial monogamy. That is a series of committed short term sexual relationship that take place one after the other. This places AA women at increased risk for HIV because although the relationship is perceived as committed (monogamous), the duration is short lived and repetitive (serial). Once the initial relationship ends, then both sexual partners will potentially move on to another sexual relationship, ultimately resulting in many sexual relationships and many sexual partners. As these relationships are perceived as committed and become more casual, condom use is less likely (Paxton, Villarreal, & Hall, 2013). Surprisingly, while each of the aforementioned short term, serial relationship dynamics are deleterious to Black women's sexual health, some data indicated that networks of long-term, concurrent, and overlapping sexual relationships result in more new HIV infections (Shelton et al., 2005).

### **HIV Stereotypes, Stigma, and HIV Risk Behavior**

HIV/AIDS stigma and the fear of HIV have a profound impact on an individual's health decisions and preventive behavior (Young et al., 2010). Stigma, a socially constructed process, is defined as an attribute that demoralizes an individual based on the views of society (Hosseinzadadeh & Hossain, 2011). HIV/AIDS stigma refers to the prejudice, stereotyping, or discrimination against individuals, groups, and/or communities who have or who are perceived to have HIV/AIDS (Hosseinzadadeh & Hossain, 2011;

University of California, San Francisco [UCSF], 2006). Expressed in a number of ways, including rejection, avoidance, ostracism, discrimination, and violence, HIV/AIDS stigma is a major problem in the fight against the disease (UCSF, 2006). It is a deterrent in HIV prevention in that it is a major barrier to HIV testing, disclosure of HIV status, and adoption of safe sex behaviors, and it is also a primary reason why individuals will not take antiretroviral medication (Hosseinzadeh & Hossain, 2011; Sengupta et al., 2010; UCSF, 2006). HIV/AIDS stigma contributes to the continued spread of the disease in urban, impoverished communities where HIV stigma is three times as likely to be associated with healthcare access (Sengupta et al., 2010).

In a study published in the *Journal of Health Education and Behavior*, researchers discovered that individuals use stigma in an effort to distance themselves from the topic of HIV (Hosseinzadeh & Hossain, 2011). This distancing results in the perception of feeling safe from the disease and a perceived shift of blame to those who have HIV. Actions such as this prevent those at risk from feeling the need to address the issue (Young et al., 2010). According to the CDC (2015d), 20 percent of people in the US are unaware of their HIV status. Fortenberry et al., (2002) found that a primary reason for this is the fear of negative personal and social consequences of a positive HIV test result by those close to the individual. Yet HIV testing allows for early diagnosis and early access to treatment options. Early diagnosis is also beneficial in that it has been associated with improved survival rates and improved quality of life when prescribed treatment regimens are followed (Hosseinzadeh & Hossain, 2011). Receiving a negative

HIV test can also be beneficial as it exposes individuals to HIV counseling, HIV knowledge, and proven prevention options such as oral PrEP (Wingwood, Dunkle, Camp, Patel, Painter, & Rubtsova, 2013; Baeten et al., 2012; CDC, 2014b).

Stigma against the disease also inhibits individuals from disclosing their HIV status. This can be harmful to individual lives and communities by limiting prevention efforts and contributing to further spread of the disease (Mawar, Sahay, & Mahajan, 2005). Research suggests that the lack of disclosure is embedded in fear of rejection, fear of abandonment, loss of confidentiality, loss of family and social support, and even fear of the loss of a potential sexual relationship (Benotsch et al., 2012). In one study, diagnosed men and women were surveyed and asked whether or not they had disclosed their status to a sexual partner. Of the respondents, 22 percent of heterosexual individuals and MSM reported having given inaccurate information regarding their status (Benotsch et al., 2012). Those living with the disease that experience stigmatization may also experience depression, anxiety, loneliness, and thoughts of suicide. Stigmatized individuals living with HIV also do not adhere to prescribed treatment regimens, making the disease more difficult to manage (Galvan, Davis, Banks, & Bing, 2005). In a study conducted to determine whether HIV stigma functions the same or differently among groups by assessing various aspects of HIV/AIDS stigma, 236 adults aged 20 to 65 years living in Australia were surveyed (Hosseinzadeh & Hossain, 2011). Dependent variables included negative feelings toward people living with HIV/AIDS (PWHA), support for coercive policies and blame, attitudes toward mandatory HIV testing, and intentions to

avoid PWHA. Results of the study revealed generally negative feelings toward HIV/AIDS and PWHA. Most respondents, 70 percent, were not sympathetic toward PWHA, and 61 percent were fearful of them. Almost half, 52.3 percent, were in favor of some type of quarantine of PWHA, and 48 percent believed that PWHA deserved their illness. Some responded that they would avoid grocery stores owned and/or staffed with people who have HIV, neighborhoods and kids with HIV/AIDS, and even coworkers who were diagnosed with the virus (Hosseinzadeh & Hossain, 2011).

As previously mentioned, HIV incidence and prevalence rates were highest among gay White males, and therefore it was considered a White gay male disease (CDC, 2013; Young et al., 2010; Miller, Boyer, & Cotton, 2004). In essence, AA women do not belong to or identify with being White and gay, nor do they believe that their sexual behavior is high-risk, resulting in a distancing effect. This was demonstrated by Young et al., (2010) in a study conducted to examine contributions of cultural worldview to low-income AA women's HIV risk perception. The study stated that stigmatization of HIV is believed to contribute optimistic bias, the underestimation of vulnerability to negative consequences, which is a major influence of risk behaviors in the AA community. In addition to other variables, perceived HIV risk and sexual optimistic bias was measured during their interviews of 196 low-income AA women. The women in this study reported high levels of optimistic sexual bias with a propensity to view themselves less likely to suffer negative consequences due to their sexual behavior. However, descriptive analysis revealed that only 19 percent of the women had reported using condoms consistently

within the past three months despite their own and their partners' sexual concurrency, and 20 percent of the women had at least two sexual partners within the past three months. Several women reported that neither they nor their partner were monogamous or that they did not know whether or not their partner was faithful during their relationship. Data from the study also suggested that some AA women tend to make downward or negative comparisons between themselves and others considered to be different from them or those who behave differently (Young et al., 2010). By doing so, researchers suggest that this allows Black women to feel more confident in their own risky behavior. This negative viewpoint is a manifestation of stigma and results in lowering the risk perception of AAs, which studies suggest is a major factor in the burgeoning spread of HIV in Black women. Kowalewski et al., (1997) reported that: "...one's individual identity or group membership is likely to influence one's perception of risk (p. 315)." The authors went on to say:

"In light of the moral evaluations and stigma associated with AIDS and the tendency to deny risk associated with stigmatized behaviors, members of one high-risk group may underestimate the risks relative to those of another stigmatized group (p. 315)."

### **Oral Pre-Exposure Prophylaxis and HIV Prevention (PrEP)**

Pre-Exposure Prophylaxis or PrEP is a daily oral antiretroviral medication regimen, and when combined with standard prevention practices, PrEP has proven effective in reducing HIV risk in uninfected persons and in preventing the spread of HIV

in high-risk populations (Sowicz, Teitelman, Coleman, & Brawner, 2014; Smith, Toldeo, Smith, Adams, & Rothenberg, 2012). Approved for use by the FDA in 2012, oral PrEP demonstrated efficacy in three clinical trials. According to Wingood et al., (2013), the iPrEx trial showed HIV transmission reduced by 44 percent in MSM as well as transgender women and the PartnersPrep trial resulted in lowering transmission rates in serodiscordant couples in Africa by more than 60 percent. TDF2, a trial examining oral PrEPs ability to prevent the spread of HIV in heterosexual men and women in Botswana, resulted in a 62 percent efficacy rate overall and a 75.5 percent efficacy rate in women (Wingood et al., 2013). Two additional studies, FEM-PrEP and VOICE, both studies of Truvada in women, did not show efficacy due to what researchers believe to be a lack of adherence to the study protocol and products (Grant & Marshall, 2013). Subsequently to and as a result of proven efficacy of oral PrEP in the clinical trials mentioned above, the CDC published recommendations providing information and clinical guidance to practitioners for the use of PrEP (CDC, 2014b). According to those guidelines, the recommended daily dose consists of 300 mg of tenofovir disoproxil fumarate (TDF) and 200 mg of emtricitabine (FTC). The drug is an option for sexually active adult MSM, heterosexual men and women, injection drug users, and HIV discordant couples. Currently, the safety and efficacy has not been proven for the adolescent population; therefore, the drug's benefits and risks should be discussed with a physician before recommending and prescribing a PrEP regimen for this population. Before starting oral PrEP, individuals wishing to take the medication should be tested for HIV and must be

HIV negative. Additionally, one's HIV status should be retested once every three months to confirm current HIV status. Additionally, the guidelines indicate the need for blood tests, which are recommended to monitor for any changes in liver and renal function. Although oral PrEP has been proven effective in preventing transmission of HIV, and despite the seemingly simple requirement of a single-dose daily regimen, barriers to broad uptake and implementation of the biomedical strategy among patients and providers must be understood and addressed.

Individuals at most risk for acquiring HIV are the targeted groups for PrEP consideration. Those include MSM, heterosexual men and women and injection drug users (CDC, 2012). Included in these risk groups are AA women (CDC, 2014b). Current research indicates that AA women's risk perception is low compared to other racial, ethnic, and high-risk groups. This is a significant problem because one of the most influential factors in HIV protective behaviors is an individual's perception of their risk of acquiring HIV (Roy et al., 2012). Influencers of low HIV risk perception and sexual risk behavior in AA women are well documented, and there is a wealth of evidence indicating significant associations between those influencers and sociodemographic variables including poverty, residency, income inequality, and access to healthcare. Additional influencers are psychosocial factors such as low risk perception of acquiring HIV, self-efficacy, attitudes toward condoms, and HIV/AIDS stigma.

Most published literature that has evaluated effectiveness and willingness to take oral PrEP has been conducted in MSM (Sowicz et al., 2014; Smith et al., 2012).

However, a recent study was conducted to examine associations between sociodemographic factors, sexual behaviors, and social factors and potential PrEP uptake among AA women in the United States (Wingood et al., 2013). The randomly selected sample of 1,068 AA women and 441 White women, ages 20-44 years, was interviewed and data analyzed. The dependent variable, potential PrEP uptake, was assessed by asking one question: whether or not the women would take a pill that could be taken once a day, every day, to prevent them from contracting HIV. Considerations of taking this pill included mild side effects such as nausea, headaches, and rashes. Independent variables were assessed and included sociodemographic data, sexual behaviors, and social factors. Sociodemographic data included race, age, education, employment, and income. Sexual behaviors assessed were unprotected sex acts and percentage of condom use in the prior 90 days, number of male sexual partners within the prior year and lifetime, history of exchanging drugs for money, history of sexual concurrency, and having sex with a high-risk male partner. Social factors collected data on peer norms supportive of PrEP, physician recommendations for PrEP, embarrassment in requesting the drug from a physician, and cost of the drug regimen. Initial bivariate data analysis was conducted examining relationships between the independent and dependent variables. Data analysis indicated the following: 1) women at higher risk, as indicated by lower SES status and higher risk behaviors, were more likely to report potential PrEP uptake, 2) women who completed high school but had less education than those who had some college had two times higher odds of considering PrEP, 3) unemployed women had almost two times



higher odds of adopting PrEP than women who worked full time, and 4) women making more than \$50,000 per year were 56% less likely to report PrEP uptake than women whose income was less than or equal to \$15,000 annually. Reports of PrEP uptake also increased as risky sexual behavior was increased. Women in the study who reported having sex for drugs or money had nearly six times greater odds of PrEP uptake. Results of the study's bivariate analysis, comparing differences in potential PrEP uptake and perceived social influenced by race, indicated that AA women were significantly more likely than White women to report potential PrEP uptake. Even after adjusting for age, education, employment, and income, relationships remained indicating an overall propensity of AA women in the group to consider PrEP compared to their White counterparts (Wingood et al., 2013).

While this study denoted positive results, indicating AA women in this sample were likely to consider PrEP, generalizability of the results cannot be assumed. Additional efforts to educate AA women on PrEP's benefit are necessary to increase adoption of the biomedical prevention strategy. However, accomplishing this may present challenges for the health educator and clinical researchers due to well documented, historical research abuse that occurred in the AA community. Most notably is the Tuskegee experiment of 1932. AA men were intentionally infected with syphilis for the purpose of recording the biological progression of syphilis in Black men. At the time of the start of the experiment, there was no treatment or cure for syphilis. However, in 1947, penicillin became the standard treatment for the disease. Despite this medical

advancement, penicillin was withheld from the participants. As a result of this egregious exploitation and abuse, many of the men died and many women and children were affected by the disease (Tuskegee University, 2015). This historical event and others have resulted in negative perceptions, a lack of trust, and resentment by AA's toward the medical establishment. Subsequently, AA men and women have been reluctant to participate in clinical trials designed to evaluate the safety, effectiveness, and any potential side effects of new drugs. Therefore, intervention and treatment regimens of new drugs and therapies are typically based on results of clinical studies, predominantly consisting of White, middle-aged men (Chandra & Paul, 2003). Additionally, because PrEP is a relatively new approach in the fight against HIV in the AA community, PrEP awareness and adoption must be integrated into the AA community's social networks before widespread adoption is to be realized. A lack of trust in the medical establishment, negative perceptions of the healthcare system, costs of the innovation, and communication barriers can result in the number of early adopters of innovation to be relatively low. However, according to the Diffusion of Innovations Theory, only a small group of early adopters are needed to initiate new behaviors throughout a larger population (Bertran, 2004).

Because African American women are one of the groups most adversely impacted by HIV, it is crucial for the research community to study and understand influencing factors contributing to this phenomenon. Evidence indicates that while there are documented social and psychological factors that influence HIV protective behaviors,

there are also documented effective prevention strategies. Oral PrEP, specifically Truvada, is one of those strategies, proven to reduce the risk of HIV transmission in high-risk groups including AA women. In an effort to develop and implement successful strategies for this group, which will include interventions that target barriers contextual to Black women, the influencers and associations of those barriers must be thoroughly examined.

## CHAPTER III

### METHODOLOGY

The purpose of this study is to examine the relationship between psychosocial factors of HIV, HIV risk perception, and Intent to use PrEP as a biomedical intervention strategy among African American women residing in the southern United States.

Research and analysis of psychosocial theories related to behavioral health decisions and health seeking behaviors suggest that psychosocial and demographic variables such as perception of risk associated with a behavior choice, belief in the ability to perform and sustain a positive behavior, attitudes about a behavior, the amount of social support, and the stigma related to a behavior are critical to adopting a new behavior (Roy et al., 2012). For this reason, those constructs were chosen to examine for any relationships they may have on the dependent variable.

#### **Population and Sample**

Data from the target population was collected via online questionnaire format from women between the ages of 18 and 65 years, who self-identified as African American, residing in one of the 16 states and one district that comprise the southern US. The southern US, as defined by the United States Census Bureau (2014), includes and is limited to: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

### **Protection of Human Participants**

Data collected for this research study was secondary data. The following efforts were made to protect the confidentiality of the primary participants from which the primary data was collected. First, participant access to the survey was password protected by a password of their choice. The principle investigator did not have access to passwords chosen by those who took the survey. All communication was conducted utilizing a password-protected computer and all data was stored in a password-protected data management file. Second, at any time, participants were able to stop the survey and return at a later time, stop the survey and not return at all, or withdraw from the survey altogether. Additionally, in the event that a participant experienced any distress due to the sensitive nature of the questions in the questionnaire, a list of HIV outreach resources, organizations, and links were provided. Examples of those resources provided include the Centers for Disease Control and Prevention's link to HIV testing by ZIP code, HIV testing facts, information regarding HIV biomedical strategies, information regarding PrEP, and a list of HIV/AIDS resources available by state.

### **Data Collection Procedures**

Data for this research consisted of extraction and analysis of the entire data set from an original study conducted to examine attitudes toward biomedical HIV prevention strategies and risks associated with HIV transmission among Black women that reside in the southern portion of the US. Participants were recruited using the snowball technique and surveys were disseminated electronically. Participants answered questions via a web-

based questionnaire, which was estimated to take approximately 45 minutes to complete. Once a participant entered the link to the survey, they were asked to answer questions to determine whether or not inclusion criteria were met, which ultimately determined study eligibility. Inclusion criteria from the primary study included: being female, being between the ages of 18 and 65, self-identifying as African American or Black, and currently residing in the southern United States as defined by the US Census Bureau. If eligibility requirements were met, the participants were directed to complete the remainder of the questionnaire. If eligibility requirements were not met, participants were taken directly to the end of the survey and thanked for their willingness to participate in the research study. Completed survey data was then stored in a password-protected data management system and any identifiable data was converted to numeric codes for analysis. All data was stored and secured on a password-protected computer for safekeeping. Data for the purposes of this research was extracted from that database and analyzed to examine relationships between the independent and dependent variables.

### **Instrumentation**

Instruments used to collect and measure the independent variables for this research include 1) Perceived Risk of HIV Scale, 2) Sexual Health Practices Self-Efficacy Scale, 3) UCLA Multidimensional Condom Attitudes Scale, and 4) Stereotypes about AIDS Questionnaire. The dependent variable, Intent to use PrEP as a biomedical intervention strategy, was measured using three questions from the Clinical Research Involvement Scale. Sociodemographic data were also collected.

## **The Perceived Risk of HIV Scale**

The Perceived Risk of HIV Scale (PRHS) was developed to assess individual judgments and risk assessments for contracting HIV (Fisher, Davis, Yarber, & Davis, 2010). The PRHS scale combines survey items from the Item Response Theory (IRT), which measures perceived risk of HIV infection, and the Risk Behavior Assessment (RBA), which measures risky sexual behavior, to assess different dimensions of risk as it relates to HIV (Fisher et al., 2010). The final version of the PRHS scale consists of 8 survey items with good reliability and concurrent construct validity with an internal consistency alpha of .88 (Napper, Fisher, & Reynolds, 2012). Some items on the questionnaire are ranked on a Likert scale ranging from “extremely unlikely” to “extremely likely” and some items are answered as “agree” or “disagree.” Examples of the items on the scale include “What is your gut feeling about how likely you are to get infected with HIV,” “I worry about getting infected with HIV,” “I feel vulnerable to HIV infection,” “I am sure I will NOT get infected with HIV,” and “There is a chance, no matter how small, I could get HIV.” Participant responses are totaled with scores ranging from 10 to 40. Higher scores on the final 8-item scale are positively associated with a greater number of sexual partners, unprotected sexual intercourse, and sex while under the influence of drugs. For purposes of this study, two questions were measured to assess a participant’s perception of HIV risk. Those questions were “I worry about getting infected with HIV” and “I feel vulnerable to HIV infection.”

## **Sexual Health Practices Self-Efficacy Scale**

The Sexual Health Practices Self-Efficacy Scale (SHPSES) was developed to measure one's self-efficacy, or confidence, in performing different sexual health practices based on their knowledge, skills, and comfort levels about those practices (Fisher et al., 2001). Bandura describes the concept of self-efficacy as the confidence and conviction in performing a specific health behavior, and it is a concept that is recognized as necessary for behavior change (Roy et al., 2012). The SHPSES scale consists of 20 survey items that represent multiple sexual health practices and it is divided into 6 subscales. Cronbach for the entire scale is .89 with each subscale possessing its own Cronbach's coefficient, with the exception of the abstinence subscale, which only consists of one question and was not measured. Content validity was assessed via major textbooks, the syllabi of several sexuality courses taught at the collegiate level, and a panel of experts (Fisher et al., 2010). The 6 subscales and their associated reliability coefficients are: Sexual Relationships (.82), Sexual Health Care (.81), Sexual Assault (.78), Safer Sex (.71), Sexual Equality and Diversity (.73), and 6) Abstinence (not measured) (Fisher et al., 2010). All survey items on the scale rated on a 5-point Likert scale, which includes: (1) not at all confident, (2) slightly confident, (3) moderately confident, (4) highly confident, and (5) extremely confident. Total scores range from 20 (least self-confident) to 100 (most self-confident).

Two scales from the SHPSES were used for this research: the Sexual Health Care and Safer Sex subscales. The Sexual Health Care subscale has 4 survey items in which



participants rate their self-efficacy to perform sexual healthcare practices. The sexual health practices measured and assessed were the participant's confidence and ability to perform self-breast or testicular exams, getting tested for HIV, getting tested for sexually transmitted infections (STIs), and their ability to speak with a healthcare professional about their own sexual health. The Safer Sex subscale also has 4 survey items.

Participants rate their confidence in making thoughtful decisions about their own sexual behavior and decisions about using condoms and other forms of birth control, as well as their ability to negotiate safe sex practices with their partner.

### **The UCLA Multidimensional Condom Attitudes Scale**

The UCLA Multidimensional Condom Attitudes Scale is a questionnaire that measures one's attitudes toward condoms (Fisher et al., 2010). The scale consists of 25 survey items and measures five independent factors creating five separate subscales. Content reliability for the entire scale is .85 (Hollub, Reece, Herbenick, Hensel, & Middlestadt, 2011), with each subscale possessing its own Cronbach's coefficient. The survey subscales and their corresponding alpha coefficients are: liability and effectiveness (.73), associated sexual pleasure (.77), stigma associated with proposing condoms (.78), embarrassment about negotiating and using condoms (.78), and embarrassment of purchasing condoms (.89) (Fisher et al., 2010). Validity was established by showing that male and female experiences were associated with the five factors measured in the scale as well as survey validation within low-acculturated undergraduate student population (Fisher et al., 2010). All survey items on this

questionnaire are ranked using a 7-point Likert scale, which includes: (1) strongly agree, (2) disagree, (3) slightly disagree, (4) neutral, (5) slightly agree, (6) agree, and (7) strongly agree. Some items on the scale are worded negatively and require reverse scoring before tabulating a final score. Higher total scores are associated with more positive Attitudes toward condoms.

Two subscales, stigma associated with proposing condoms and embarrassment about negotiating and using condoms, were used for the purposes of this research. The first subscale used, stigma associated with proposing condoms, consists of 5 survey items. Participants are asked to rank the following items on the Likert scale: “Women think men who use condoms are jerks,” “If a couple is about to have sex and the man suggests using a condom, it is likely that they will have sex,” “People who suggest condom use are a little bit geeky,” “Men who suggest using a condom are really boring,” and “A woman who suggests using a condom does not trust her partner.” The embarrassment about negotiating and using condoms subscale consists of 5 survey items that are ranked on the Likert scale. Examples of items included in the subscale are: “It is really hard to bring up the issue of using condoms to my partner,” “When I suggest using a condom I am almost always embarrassed,” and “I never know what to say when my partner and I need to talk about condoms or other protection.”

### **Stereotypes about AIDS Scale**

The Stereotypes about AIDS Scale is a multidimensional scale developed to analyze AIDS stereotypes (Fisher et al., 2010). The scale consists of 115 survey items

that make up four sections of AIDS related stereotypes (Sections A through D), with multiple subscale measurements in each section. Content reliability was determined based on ranges for each of the four sections: Section A, Stereotypic Beliefs about AIDS (.75-.85), Section B, Personal Attitudes about AIDS (.72-.87), Section C, Medical Issues related to AIDS (.64-.83), and Section D, Sexuality and AIDS (.78-.86). Validity was reported as consistent patterns emerged across gender lines when comparing negative or inaccurate stereotypes about AIDS, personal AIDS relevancy, and the amount of anxiety related to AIDS (Fisher et al., 2010). For purposes of this study, all survey items on the questionnaire were ranked using the 5-point Likert scale based on how much the participant agrees or disagrees with each statement. The scale consists of (5) Agree, (4) Slightly Agree, (3) Neither Agree nor Disagree, (2) Slightly Disagree, and (1) Disagree. Some items on the scale are worded negatively and require reverse scoring before tabulating a final score. Higher scores indicated less agreement with Stereotype measures while lower scores indicated greater disagreement with the Stereotypes measured.

Section A, Global Stereotypic Beliefs about AIDS, has four subscales and a total of 30 survey items. Subscale measurements for section A are: the need for AIDS related education, AIDS relates confidentiality, transmission of AIDS, and AIDS is caused by homosexuality.

Section B, Personal Attitudes about AIDS, has 5 subscales and a total of 35 items. Subscale measurements for section B are: a desire to avoid those afflicted with AIDS,

AIDS is not perceived as self-relevant, a close-minded approach to AIDS, the issue of AIDS is being exaggerated, and the notion that AIDS is a moral punishment.

Section C, Medical Issues about AIDS, has 4 subscales and a total of 30 items. Subscale measurements in section C: the belief that AIDS is a threat to medical staff, protecting the US blood supply system from AIDS, a cure for AIDS, and AIDS testing should be conducted.

The final section, section D, Sexual Issues about AIDS, has two subscales. The subscale measurements in section D are: the relationship between AIDS and sexual activity and prevention of AIDS through the use of condoms. Section D has a total of 20 items.

For purposes of this research, two sections from the survey were utilized: section B and section D.

Of the five subscales that compose section B (Personal Attitudes about AIDS) only one subscale was used for this research. The subscale was titled “AIDS is not perceived as self-relevant”. There are four items in this subscale: “AIDS is really not my problem; it’s somebody else’s,” “AIDS is not my problem,” “AIDS is not a threat to me,” and “The AIDS crisis is really removed from me.”

Section D, (Sexual Issues about AIDS) is comprised of two subscales and both subscales were used for this research. The first D subscale (the relationship between AIDS and sexual activity) consists of 12 questions. Examples of some of those questions

are: “AIDS is a serious challenge to the notion of recreational sex,” “AIDS cannot be transmitted by heterosexual (male/female) sexual activity,” “AIDS is associated with multiple anonymous sexual contacts,” and “People can contract AIDS from sexual contact with a single infected person.” The second D subscale (prevention of AIDS through the use of condoms) has 5 items. Examples of those items include: “Condoms offer protection against the spread of AIDS,” “Condoms are a safe shield against AIDS,” “Proper use of condoms can reduce the risk of catching AIDS,” and “Heterosexuals who use condoms can lessen their risk for getting AIDS.” Again, all items are ranked using the 5-point Likert scale mentioned above and each subscale is averaged for a final score.

### **Clinical Research Involvement Scale (CRIS)**

The Clinical Research Involvement Scale (CRIS) was developed to assess willingness to participate in clinical trials based on domains or factors that drive participation in such research (Frew, et al., 2010). The CRIS scale was used for the purpose of this research study to measure the dependent variable, Intent to use PrEP as a biomedical prevention strategy. The CRIS questionnaire consists of a total of 41 survey items and 8 separate subscales. The scale’s overall reliability has a Cronbach’s alpha of .85, with each subscale possessing its own reliability coefficient. The scales construct and convergent validities are .068 and .835 (Frew, et al., 2010). The subscales and related reliability coefficients are: attitudes (.730), subjective norms (.850), behavioral beliefs (.851), outcome evaluations (.810), normative beliefs (.782), motivation to comply (.822), organizational involvement (.797), and personal relevance if volunteerism (.917) (Frew,

et al., 2010). All survey items are ranked on a 5-point Likert scale ranging from “strongly agree” to “strongly disagree”. For purposes of this research study, two survey items were ranked on the 5-point Likert scale and analyzed to measure Intent to use biomedical interventions strategies such as PrEP and an HIV prevention strategy. The items were “I would take biomedical HIV prevention strategies such as PrEP to prevent the spread of HIV if it were available,” and “I would benefit from taking biomedical HIV prevention strategies such as PrEP as a way to prevent the spread of HIV.”

### **Sociodemographic/Socioeconomic Data**

Sociodemographic variables are potential correlates of HIV risk behaviors and decisions making regarding sexual health (Roy et al., 2012). Sociodemographic data collected included participant age, current state of residency, highest level of education completed, relationship status, and annual household income.

### **Data Analysis**

Permission was obtained from the primary investigator of the original study to access and extract the entire data set for analysis. All data will be downloaded into a file and analyzed utilizing the statistical software package Statistical Package for the Social Sciences (SPSS). The type of statistical analysis chosen was based on the types of variables analyzed. Frequencies and means were used for the basic descriptive population statistics for the participant’s age, current state of residency, highest level of education completed, relationship status, and annual household income. Correlation studies were

used to analyze relationships or differences between psychosocial factors of HIV and Intent to use PrEP as a biomedical prevention strategy among AA women living in the US. Multiple regression analysis was used to identify the best set of predictor variables, such as level of education, annual income, and relationship status and Intent to use biomedical prevention such as PrEP.

### **Summary**

Although African American women in the United States, specifically those living in the south, are at an increased risk for contracting HIV, they do not perceive themselves to be at risk for contracting the virus (Paxton, Williams, Bolden, Guzman, & Harwa, 2013). Psychosocial theories suggest that individuals make behavioral decisions based on their intention and ability to carry out a particular behavior. However, behavioral intent and one's actual behavior can be difficult to accurately measure (Roy et al., 2012). For this reason, proximate psychosocial factors, such as risk perception, self-efficacy, attitudes, and stereotypes, can be analyzed and measured instead. Survey instruments with dependable reliability and validity were used to measure the psychosocial constructs relevant to HIV risk behavior and this research study would answer the identified research questions and related hypothesis.

## CHAPTER IV

### RESULTS

Independent and dependent variables for this quantitative study were measured and analyzed in an effort to assess psychosocial factors and Intent to use PrEP as a biomedical HIV prevention method among African American women living in the southern United States. Demographic and socioeconomic variables were also examined to assess possible associations between those factors and the dependent variable; Intent to use PrEP. Descriptive and inferential statistics were obtained utilizing SPSS version 23.

#### **Final Sample and Descriptive Statistics**

Data analyzed for this research were extracted from data collected from a primary study. Raw data collected consisted of 144 respondent records. The files were then examined for completion and any incomplete files were eliminated from the sample. After eliminating the incomplete respondent files, 106 complete files remained which represented to final sample size (n=106). All respondents identified as female and Black or African American. Ages of the respondents ranged from 19 to 60 years of age with a mean age of 28.08 years. The sample consisted of respondents from eight states. The majority of respondents reported living in the state of Texas. The other seven states included Georgia, Kentucky, Louisiana, Maryland, Oklahoma, South Carolina, and Virginia (Table 1). Education levels of the sample were split evenly between those



having a college education and those who did not. Fifty percent either had a high school diploma or a GED and the other 50 percent reported having an associate degree, technical or vocational license (22.6 percent), a bachelor's degree (12.3 percent), a graduate degree (12.3 percent), or either a post-graduate degree, medical degree, or a was a college professor (2.8 percent) (Table 1). Income levels ranged from less than \$20,000 to more than \$100,000 annually. Approximately 60 percent of the total sample reported an income less than \$40,000 followed by approximately 40 percent reporting making \$40,000 to more than \$100,000 (Table 1).

Data was also collected on respondents' relationship status and gender sexual preference. Of the 106 African American females who completed the survey, 39.6 percent indicated that they were single/never married. The remaining respondents indicated they were either in a relationship (9.4 percent), married or had a partner (6.6 percent), widowed (.9 percent) or other (43.4 percent) (Table 1). One item on the survey asked respondents which gender they had sex with. The majority of the women who completed the survey indicated they have sex with men (84.9 percent) while 2.8 percent responded they have sex with both men and women and three respondents (2.8 percent) indicated that they were a virgin (Table 2).

Respondents were also asked about their HIV testing history within the past 6 months. Responses to this question were nearly evenly split. Fifty respondents indicated they had received an HIV test within the past six months (47.2 percent) and 51 responded they had not received an HIV test within the past six months (48.1 percent). Four

respondents indicated they did not know whether or not they had received an HIV test (3.8 percent) and one respondent chose not to answer the question (Table 3).

Additionally, the survey contained a question regarding respondents' serodiscordant relationship history. Almost two percent of respondents indicated they have been in a serodiscordant relationship, 92.5 percent responded they had not ever been in a serodiscordant relationship, and 5.7 percent did not know whether they had or not been in a serodiscordant relationship (Table 4).

Table 1

*Sociodemographics/Socioeconomic Variables*

	N	%
<b>State of Residency</b>		
Georgia	4	3.8
Kentucky	1	.9
Louisiana	3	2.8
Maryland	2	1.9
Oklahoma	2	1.9
S Carolina	1	.9
Texas	92	86.8
Virginia	1	.9
<b>Education Level</b>		
HS/Graduate/GED	53	50.0
Tech/Vocational School/AD	24	22.6
BS/BA	13	12.3
MS/MA	13	12.3
PhD/MD/Prof	3	2.8
<b>Income</b>		
Less than \$20K	42	39.6
\$20K- \$40K	22	20.8
\$40K- \$60K	11	10.4
\$60K- \$80K	14	13.2
\$80K- \$100K	8	7.5
More than \$100K	9	8.5
<b>Relationship Status</b>		
Single/Never Married	42	39.6
In a Relationship	10	9.4
Married/Partner	7	6.6
Widow	1	.9
Other	46	43.4

Note: (n=106)

Table 2

*Sexual Preference*

	n	%
<b>Have Sex With</b>		
Men	90	84.9
Women	10	9.4
Men & Women	3	2.8
Virgin	3	2.8

Note: (n=106)

Table 3

*HIV Test in Past 6 Months*

	n	%
<b>HIV Test</b>		
Yes	50	47.2
No	51	48.1
I Don't Know	4	3.8
No Answer	1	.9

Note: (n=106)

Table 4

*Serodiscordant Relationship History*

	n	%
<b>Serodiscord Rel Status</b>		
Yes	2	1.9
No	98	92.5
I Don't Know	6	5.7

Note: (n=106)

**Analysis and Interpretation**

Data analyses sought to answer five research questions. Question 1: Is there a relationship between sociodemographic factors such as education, income and

relationship status and Intent to use PrEP as an HIV prevention strategy among African American women living in the southern US? Question 2: Is there a relationship between Perceived HIV Risk perception and Intent to use PrEP as an HIV prevention strategy among African American women living in the southern US? Question 3: Is there a relationship between Self-efficacy to adopt HIV protective behaviors and Intent to use PrEP as an HIV prevention strategy among African American women living in the southern US? Question 4: Is there a relationship between Attitudes toward condoms and Intent to use PrEP as an HIV prevention strategy among African American women living in the southern US? Question 5: Is there a relationship between Stereotypes about HIV/AIDS and Intent to use PrEP as an HIV prevention strategy among African American women living in the southern US?

Likert scales were used to measure responses for both the independent and dependent variables. Independent variable measures included Perceived HIV Risk, Self-efficacy to perform protective sexual behaviors, Attitudes toward condoms, and Stereotypes about HIV/AIDS. The dependent variable used for purposes of this research study was Intent to use a biomedical HIV prevention strategy such as PrEP. Survey items within a construct were grouped, and a summative score was calculated for each variable, for a sum variable score in which the higher the sum variable score, the more favorable the variable measure. The independent variables are indicated as Sum Perceived Risk, Sum Self-Efficacy, Sum Attitudes, and Sum Stereotypes. The dependent variable is indicated as Sum Intent.

Two survey items were used to measure the independent variable Perceived HIV Risk. Both items were measured using a 6-Point Likert Scale and added to get a Sum Perceived HIV Risk score. The minimum score was 2 and the maximum score was 12. The higher the Perceived HIV Risk score indicates a higher belief that contracting HIV is possible, therefore the most favorable response for perceived HIV risk was 12. A total of eight survey items were used to measure the independent variable Self-Efficacy to perform protective sexual behaviors. All survey items were measured on a 5-Point Likert scale and added to get a Sum score. The minimum score was 14 and the maximum score was 40. The higher the Self-Efficacy score, the higher one's confidence in their ability to perform personal sexual healthcare and to perform safer sex practices. A summative most favorable Self-Efficacy score was 40. The independent variable, Attitude toward condoms, was measured using a total of nine survey items. All items were measured on a 7-Point Likert scale and added to achieve a Sum Attitude score. Of the nine survey items, eight were reversed scored. The minimum score was 25 and the maximum score was 70. The higher the score indicated a more positive attitude toward proposing condoms and a less negative attitude about negotiating and using condoms. A most favorable Sum attitude score was 70. The final independent variable measured was Stereotypes about HIV/AIDS. A total of 21 survey items were measured on a 5-Point Likert scale and added to get a Sum Stereotype score. Four of the Stereotype survey items required reverse scoring with a minimum score of 40 and a maximum score of 100. The higher the Sum Stereotype score, the less the respondents' agreement is with HIV/AIDS stereotypes. A

summative most favorable HIV/AIDS Stereotype score was 100. Finally, the dependent variable, Intent to use a biomedical HIV prevention strategy such as PrEP was measured using two survey items on a 5-Point Likert scale. The two items were added to get a Sum Intent score. The minimum score was 2 and the maximum score was 10. The higher the score, the higher the likelihood of using PrEP as an HIV prevention strategy based on availability and benefit. A summative most favorable score for Intent to use PrEP was 10. Independent variable mean scores were as follows: Sum Perceived Risk Mean: 5.6, Sum Self-Efficacy Mean: 33.77, Sum Attitudes Mean: 59.89 and Sum Stereotypes Mean: 82.03 (Table 5). The dependent variable mean score for Sum Intent was 7.75 (Table 6).

Table 5

*Independent Variable Means*

	n	Minimum	Maximum	Mean	Std. Deviation	Variance
Sum Perceived Risk	106	2	12	5.660	2.4684	6.093
Sum Self-Efficacy	106	14	40	33.774	5.9893	35.872
Sum Attitudes	106	25	70	59.896	10.3371	106.856
Sum Stereotypes	106	40	100	82.038	13.4695	181.427

Note: (n=106)

Table 6

*Dependent Variable Means*

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Sum Intent	106	2	10	7.755	1.8964	3.596

Note: (n=106)

While the most favorable Sum Perceived Risk score was 12, the mean perceived HIV risk score, as mentioned above, was 5.6. Most of the respondents had Sum Perceived Risk score below the variable mean (62.3 percent) while only 37.8 percent had score equal to or above the mean. The independent variable means outcome for this sample indicates an overall low Perceived HIV Risk as the majority of respondents, based on response distribution scores at or below a Perceived Risk score of 6 (n=66) (Figure 1). The Sum Self-Efficacy distribution was skewed toward the right of mean in the distribution table with a mean Sum Self- Efficacy score of 33.77. Forty percent of respondents had mean Sum Self- Efficacy scores  $\leq 33.77$  and 60 percent had mean scores  $\geq 33.77$ . This outcome indicated most respondents had high confidence in their ability to perform sexual health care practices and perform safer sex behaviors as the majority of women taking the survey had mean Sum Self-efficacy scores higher than the sample means (Figure 2). The Sum Attitudes distribution was also skewed toward the right of the mean score. The mean Sum Attitudes score was 59.9. Forty six percent of respondents had Sum Attitude scores less than the sample mean. However, 54 percent had mean attitude scores higher than the mean. This was an indication that the sample had more positive attitudes toward initiating and proposing condoms and less negative attitudes toward negotiating and using condoms (Figure 3). Regarding Stereotypes, the majority of the respondents had overall favorable Sum Stereotype scores. Sum Stereotype sample mean was 82.03. Fifty seven percent had Sum Stereotype scores  $\geq 82$  (Figure 4) indicative of less agreement with HIV/AIDS stereotypes while the other 43 percent had



Stereotype scores of less than the mean. Finally, regarding the dependent variable Intent, most respondents scored above the sample mean of 7.75. Recall that the higher the Sum Intent score, the higher the intent to use a biomedical HIV prevention strategy such as PrEP. Approximately sixty percent of respondents scored  $\geq 8$  while approximately 40 percent scored  $\leq 7$ . This outcome indicates the majority of respondents in this sample were more likely to use PrEP as a biomedical HIV prevention strategy (Figure 5).

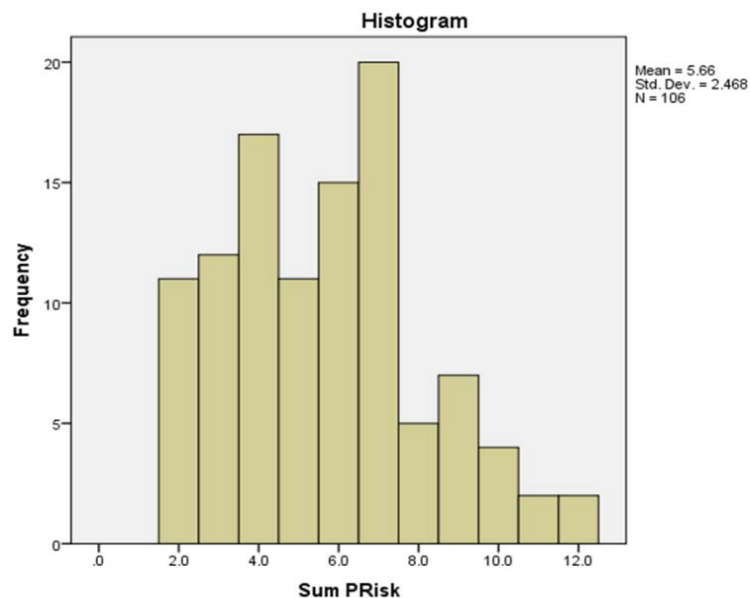


Figure 1. Sum Perceived Risk item response scores by frequency. (n=106)

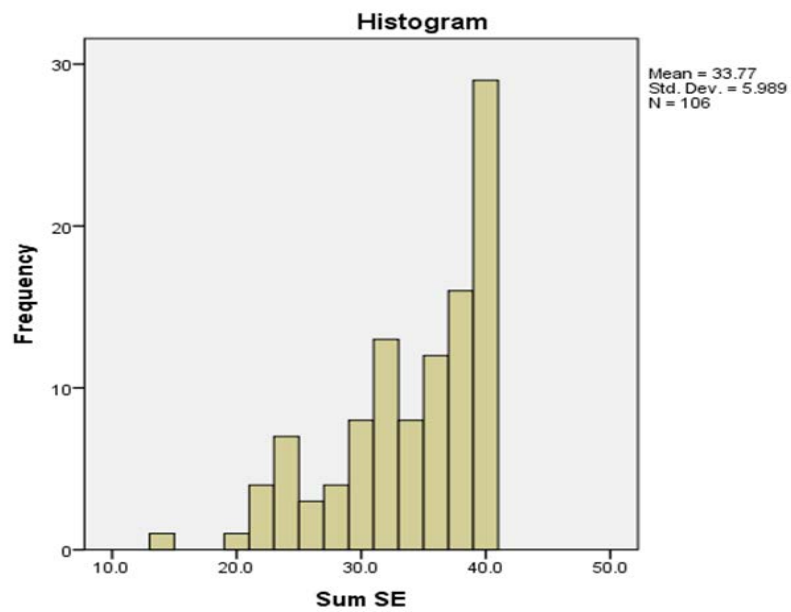


Figure 2. Sum Self-Efficacy item response scores by frequency. (n=106)

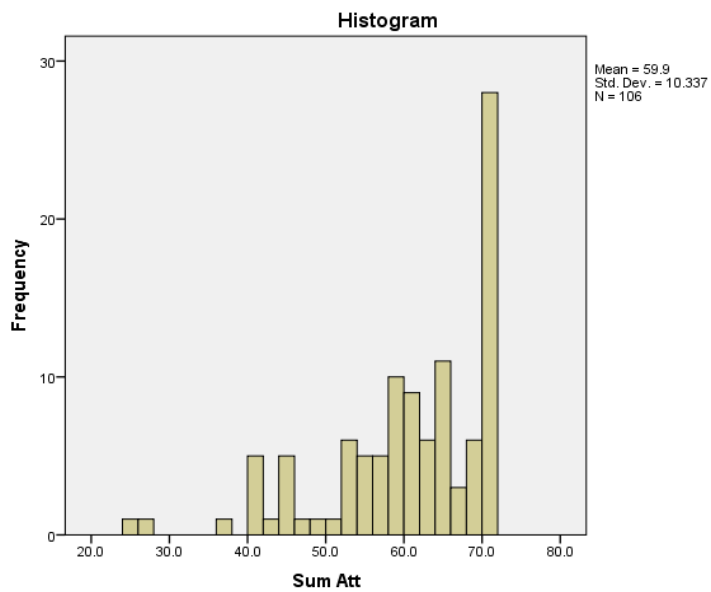


Figure 3. Sum Attitudes item response score by frequency. (n=106)

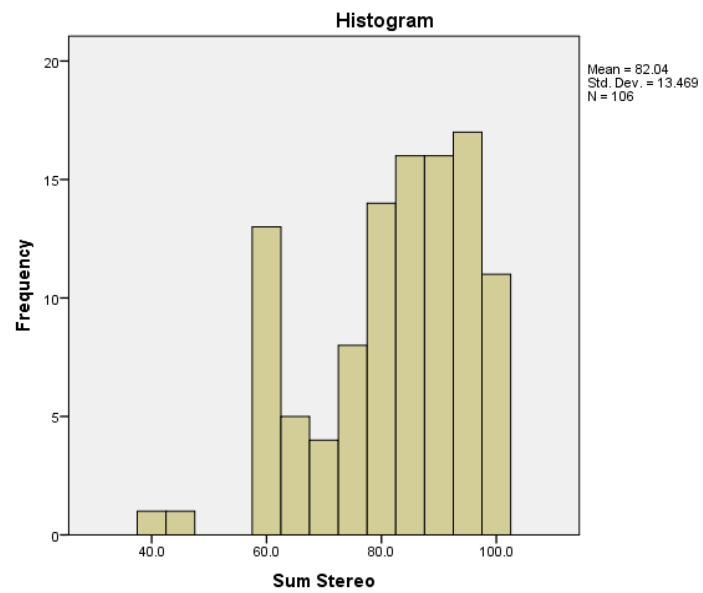


Figure 4. Sum Stereotypes items response score by frequency. (n=106)

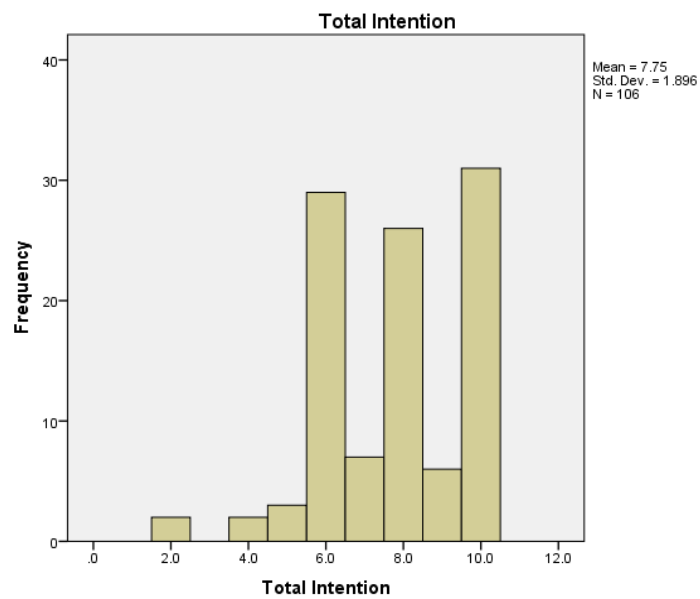


Figure 5. Sum Intent items response score by frequency. (n=106)

## **Correlation**

In examining the five research questions, statistical analysis was conducted to determine the relationship, if any, between the dependent and independent variables. A Pearson bivariate correlation matrix table of coefficients outlined the strength of these relationships (Table 7).

Among the independent variables, at  $p=0.01$  level of significance, statistically significant correlations were found between attitude and Self-Efficacy, Attitude and Stereotype, Stereotype and Self-Efficacy. The only statistically significant correlation found between the independent variables (Perceived HIV Risk, Self-Efficacy, Attitudes, and Stereotypes) and the dependent variable Intent to use a biomedical HIV prevention strategy such as PrEP was between the independent variable Stereotypes about HIV/AIDS and Intent to use biomedical prevention strategies such as PrEP.

The strongest correlation among independent variables existed between Sum Attitudes and Sum Self-Efficacy ( $r=.524$ ) followed by Sum Attitude and Sum Stereotype ( $r=.343$ ). The least significant correlation between independent variables existed between Sum Stereotype and Sum Self-Efficacy ( $r=.258$ ), all at  $p=0.01$  level of significance. At  $p=0.05$  level of significance, the independent variable Sum Stereotype was statistically correlated with the dependent variable Sum Intent at  $r=.201$ .

Table 7

*Pearson Correlation between Dependent and Independent Variable*

		Sum Per-Risk	Sum Self-Eff	Sum Attitude	Sum Stereotype	Sum Intent
Sum Per-Risk	Pearson Correlation	1	-.130	-.135	.185	.124
	Sig. (2-tailed)		.186	.169	.058	.204
	N	106	106	106	106	106
Sum Self- Eff	Pearson Correlation	-.130	1	<b>.524**</b>	<b>.258**</b>	.086
	Sig. (2-tailed)	.186		.000	.008	.383
	N	106	106	106	106	106
Sum Attitude	Pearson Correlation	-.135	<b>.524**</b>	1	.343**	.117
	Sig. (2-tailed)	.169	.000		.000	.233
	N	106	106	106	106	106
Sum Stereo	Pearson Correlation	.185	<b>.258**</b>	<b>.343**</b>	1	.201*
	Sig. (2-tailed)	.058	.008	.000		.039
	N	106	106	106	106	106
Sum Intent	Pearson Correlation	.124	.086	.117	<b>.201*</b>	1
	Sig. (2-tailed)	.204	.383	.233	.039	
	N	106	106	106	106	106

Note: ( $n=106$ ) \*\*Correlation is significant at the 0.01 level (2-tailed). \*Correlation is significant at the 0.05 level (2-tailed).

A Spearman Rho Correlation was conducted to examine relationships between the Sociodemographic factors (education, income, and relationship status) and the dependent variable of Intent. Two survey items were used to measure the dependent variable Intent to use a biomedical HIV prevention strategy such as PrEP. Survey item one asked the respondent if they would take biomedical HIV prevention strategies such as PrEP to

prevent the spread of HIV if it were available and survey item two asked whether the respondent felt they would benefit from taking biomedical prevention strategies such as PrEP as a way to prevent the spread of HIV. Both survey items measuring Intent were individually examined to maximize testing of the sociodemographic categorical levels of measurement. Results of the Spearman Rho correlation indicated that there was not a statistically significant correlation between the sociodemographic/socioeconomic factors education, income, and relationship status and Intent to use a biomedical HIV prevention strategy such as PrEP based on availability or benefit (Table 8).

Table 8

*Spearman Rho Correlations- Sociodemographic/Socioeconomic and Two Dependent Variable Survey Items*

		Education	Income	Relationship Status	Intent Q1	Intent Q2
Education	Correlation Coefficient	1.000	.470**	-.063	-.002	-.115
	Sig. (2-tailed)	.	.000	.519	.981	.242
	N	106	106	106	106	106
Income	Correlation Coefficient	.470**	1.000	-.045	.003	.004
	Sig. (2-tailed)	.000	.	.645	.977	.964
	N	106	106	106	106	106
Relationship Status	Correlation Coefficient	-.063	-.045	1.000	-.010	-.073
	Sig. (2-tailed)	.519	.645	.	.921	.459
	N	106	106	106	106	106
Intent Q1	Correlation Coefficient	-.002	.003	-.010	1.000	.717**
	Sig. (2-tailed)	.981	.977	.921	.	.000
	N	106	106	106	106	106
Intent Q2	Correlation Coefficient	-.115	.004	-.073	.717**	1.000
	Sig. (2-tailed)	.242	.964	.459	.000	.
	N	106	106	106	106	106

Note: (n=106) \*\*. Correlation is significant at the 0.01 level (2-tailed).

### **Independent Sample t-test**

Although no correlations were identified between the Sociodemographic/socioeconomic factors and Intent, independent sample t-tests were still conducted to finalize the analyses in addressing the research questions and hypotheses. Independent sample t-tests were conducted to examine whether statistically

significant differences existed between sociodemographic/socioeconomic groups within the sample and their Intent to use a biomedical HIV prevention strategy such as PrEP. Each sociodemographic/socioeconomic factor was categorized into two groups for t-test comparison. The two education groups included respondents who were high school graduates/GED (n=53) and those with higher education degrees (n=53). Among the two education groups, there was no statistically significant difference in Intent to use PrEP (p=1.0) (Table 9). Income was categorized into respondents who reported an income of  $\leq$  \$40,000 (n=64) and those making  $>$ \$40,000 (n=42). Among the two income groups, there was no statistically significant difference in Intent to use PrEP (p=.625) (Table 10). Finally, relationship status was categorized into respondents who reported being single/never married (n=42) and all other relationship groups (n=64). Independent sample t-tests revealed that there was no statistically significant difference in Intent among relationship groups (p=.283) (Table 11).

Respondents' HIV test status was not originally chosen to be assessed as a correlate or factor for the dependent variable, however, the data point was examined. Part of the National Strategy on HIV Prevention and as a component of the high impact HIV prevention efforts, HIV testing awareness for high-risk individuals is one of the areas of focus for leading healthcare and education organizations. Additionally, according to PrEP treatment guidelines, an individual must be HIV negative before the drug can be prescribed and taken and he or she must remain HIV negative while taking the PrEP regimen (CDC, 2014b). Therefore, HIV testing and awareness regarding one's HIV status



can be a significant factor in the successful implementation of biomedical strategies such as PrEP (CDCc, 2015). In an effort to examine whether or not there was a statistically significant difference between respondents who reported having had an HIV test within the past six months and those who had not on the dependent variable Intent to use PrEP, an independent sample t-test was subsequently conducted on the two groups. Results indicated that among those who had received an HIV test (n=50) and those who had not (n=51) there was no statistically significance difference in Intent to use PrEP between the two groups (p=.507).

Table 9

*Independent Sample t-test Education*

	EdGp2	N	Mean	Std. Deviation	Std. Error Mean
Sum Intent	HS	53	7.755	1.7749	.2438
	Grad/GED				
	Higher Ed	53	7.755	2.0277	.2785

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Sum Intent	Equal variances assumed	1.835	.178	.000	104	1.000

Note: (n=106)

Table 10

*Independent Sample t-test Income*

	IncomeGp 2	N	Mean	Std. Deviation	Std. Error Mean
Sum	≤ \$40k	64	7.828	1.8044	.2255
Intent	> \$40k	42	7.643	2.0461	.3157

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2- tailed)
Sum	Equal					
Intent	variances	2.295	.133	.490	104	.625
	assumed					

Note: (n=106)

Table 11

*Independent Sample t-test Relationship Status*

	Relationship Status Gp2	N	Mean	Std. Deviation	Std. Error Mean
Sum	Single/Never	42	8.000	2.0601	.3179
Intent	Marry Other	64	7.594	1.7792	.2224

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2- tailed)
Sum	Equal					
Intent	variances	.156	.693	1.080	104	.283
	assumed					

Note: (n=106)

Table 12

*Independent Sample t-test HIV Test Status*

	HIV Test Y/N	N	Mean	Std. Deviation	Std. Error Mean
Sum Intent	Yes	50	7.920	1.7124	.2422
	No	51	7.667	2.0849	.2919

**Independent Samples Test**

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Sum Intent Equal variances assumed	1.736	.191	.667	99	.507

Note: ( $n=101$ )

Upon further inspection of the sample demographics, respondents' age distribution appeared to vary, prompting additional analysis. The minimum age of the population was 19 and the maximum was 60 with a mean age of 28. Perceived risk, one's belief in their susceptibility and vulnerability to a disease, must be present in order to elicit a behavior change and may vary based on individual factors including age. To that end, additional correlation analysis was conducted to explore the relationship, if any, between Age and the independent variables as well as Age and the dependent variable Intent to use PrEP. At  $p=0.01$  level of significance, Pearson coefficients revealed significant correlations between the demographic factor of Age and each independent variable; however, none were statistically significant. Although weak, Age was inversely significantly correlated with the independent variable Sum Perceived Risk ( $r = -.195$ ) indicating that HIV risk perception was higher in younger respondents. Age was also

significantly correlated with Sum Self-Efficacy ( $r=.290$ ), Sum Attitudes ( $r=.311$ ) and Sum Stereotypes ( $r=.191$ ). Additionally, Age was statistically correlated with the dependent variable Sum Intent ( $r= -.320$ ) indicating a higher Intent to use a biomedical prevention strategy such as PrEP among younger respondents (Table 13).

### **Regression**

After conducting initial statistical analyses to examine associations between the independent and dependent variables, multiple regression models were constructed to examine whether or not there were any predictive relationships that existed among the independent variables Perceived HIV Risk, Self-Efficacy to perform sexual protective behaviors, Attitudes toward condoms and Stereotypes about HIV/AIDS and the dependent variable Intent to use a biomedical prevention strategy such as PrEP. Initial regression analysis indicated that only a 5.4 percent variance in the dependent variable of Intent could be explained by the independent variables. While Sum Stereotypes about HIV/AIDS had the highest predictive relationship to Intent ( $\beta=.151$ ), all independent variables had  $p$ -values  $>.05$ , indicating none are statistically significant predictors of the dependent variable Sum Intent (Table 14).

Table 13

*Pearson Correlations among Dependent Variable, Independent Variable, and Age*

		Sum Per-Risk	Sum Self-Eff	Sum Att	Sum Stereo	Age	Sum Intent
Sum Per-Risk	Pearson Correlation	1	-.130	-.135	.185	<b>-.195*</b>	.124
	Sig. (2-tailed)		.186	.169	.058	.045	.204
	N	106	106	106	106	106	106
Sum Self-Eff	Pearson Correlation	-.130	1	<b>.524**</b>	<b>.258**</b>	<b>.290**</b>	.086
	Sig. (2-tailed)	.186		.000	.008	.003	.383
	N	106	106	106	106	106	106
Sum Attitude	Pearson Correlation	-.135	<b>.524**</b>	1	<b>.343**</b>	<b>.311**</b>	.117
	Sig. (2-tailed)	.169	.000		.000	.001	.233
	N	106	106	106	106	106	106
Sum Stereo	Pearson Correlation	.185	<b>.258**</b>	<b>.343**</b>	1	<b>.191*</b>	<b>.201*</b>
	Sig. (2-tailed)	.058	.008	.000		.049	.039
	N	106	106	106	106	106	106
Age	Pearson Correlation	<b>-.195*</b>	<b>.290**</b>	<b>.311**</b>	<b>.191*</b>	1	<b>-.320**</b>
	Sig. (2-tailed)	.045	.003	.001	.049		.001
	N	106	106	106	106	106	106
Sum Intent	Pearson Correlation	.124	.086	.117	<b>.201*</b>	<b>-.320**</b>	1
	Sig. (2-tailed)	.204	.383	.233	.039	.001	
	N	106	106	106	106	106	106

\*Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 14

*Regression Model 1 Summary- Predictor Variable*

			Adjusted R	Std. Error
Model	R	R Square	Square	of the
				Estimate
1	.232	<b>.054</b>	.016	1.8809

		Standardized			Correlations			Collinearity	
		Coefficients			Zero-	Partial	Part	Tolerance	VIF
Model		Beta (β)	t	Sig.	order				
1	(Constant)		3.037	.003					
	Sum Pre-Risk	.109	1.073	<b>.286</b>	.124	.106	.104	.913	1.096
	Sum Self-Eff	.026	.229	<b>.820</b>	.086	.023	.022	.711	1.406
	Sum Attitude	.066	.553	<b>.581</b>	.117	.055	.054	.664	1.505
	Sum Stereo	<b>.151</b>	1.410	<b>.161</b>	.201	.139	.137	.816	1.226

a. Predictors: (Constant), Sum Pre-Risk, Sum Self -Efficacy, Sum Attitude, Sum Stereo

b. Dependent Variable: Sum Intent

Because initial correlation analysis indicated a significant relationship between Age and Intent, a modified regression model was constructed to include Age with the independent variables (Table 15). This new model could explain a 20.3 percent variance in the dependent variable of Intent to use a biomedical HIV prevention strategy. The Age variable had the highest predictive relationship with Intent ( $\beta = -.421$ ,  $p = .000$ ). Additionally, Stereotypes about HIV/AIDS ( $p = .042$ ) was found to have statistically predictive relationship to Intent.

Table 15

*Regression Model 2 Summary- Predictor Variable*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.451	.203	.164	1.7343

		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)		3.602	.000					
	Sum PRisk	.034	.360	.720	.124	.036	.032	.883	1.133
	Sum SE	.088	.824	.412	.086	.082	.074	.699	1.432
	Sum Att	.136	1.225	.223	.117	.122	.109	.650	1.538
	Sum Stereo	.205	2.063	.042	.201	.202	.184	.803	1.245
	Age	-.421	-4.335	.000	-.320	-.398	-.387	.846	1.182

a. Predictors: (Constant), Sum Pre-Risk, Sum Self -Efficacy, Sum Attitude, Sum Stereo

b. Dependent Variable: Sum Intent

**Summary**

Secondary data collection yielded rich data allowing for the analysis of psychosocial factors and Intent to use biomedical HIV prevention strategies such as PrEP among the sample. Descriptive and inferential statistics tests were conducted to examine whether or not there were relationships, interrelationships, and/or predictability among the independent variables which included: Perceived HIV Risk, Self-Efficacy to perform protective sexual behavior, Attitudes toward condoms, and Stereotypes about HIV/AIDS; and the dependent variable Intent to use a biomedical HIV prevention strategy such as PrEP. The final chapter of this study will summarize the research findings in addition to

providing conclusions and recommendations for health educators to assist in the development of effective HIV prevention programs which incorporate biomedical prevention strategies for African American women.



## CHAPTER V

### CONCLUSION AND RECOMMENDATIONS

As a biomedical strategy, oral PrEP has been clinically proven effective in preventing HIV transmission among groups most at risk when taken as directed. However, proving the effectiveness of PrEP, has been relatively less difficult than ensuring its uptake (Hankins, Macklin, & Warren, 2015), specifically among AA heterosexual women. Sadly, HIV rates among AA women continue to increase, resulting in rising HIV/AIDS related mortality and morbidity in AA women. Literature suggests that psychosocial factors have an impact on sexual behavior choices and sexual protective measures. Unfortunately, the impacts of those factors on sexual behavior choices and protective measures within the AA community have not been fully understood. Because PrEP has been proven an effective HIV prevention method, and adoption of PrEP among AA women has been slow, it is imperative that reasons for this diametrically opposed phenomenon is understood.

#### **Summary**

Secondary data was collected from an online survey repository and stored within a secure database. The initial data set contained a total of 144 files that were reviewed for completion. Upon final review, a total of 38 files were eliminated due to incomplete values, resulting in a final sample size of 106. All respondents self-identified as female,

Black or African American, and currently residing in one of the 16 southern US states or 1 district. Age range of the sample was 19 to 60 years of age. A single dependent variable and a total of four independent variables were measured and examined. The dependent variable was Intent to use a biomedical HIV prevention strategy such as PrEP was measured. The four independent variables included Perceived HIV Risk, Self- efficacy to perform HIV protective behaviors, Attitudes toward condoms, and Stereotypes about HIV/AIDS. Research questions were designed to examine associations between sociodemographic/socioeconomic factors as well as psychosocial factors and Intent to use PrEP. Additionally, the study sought to determine if any of the Sociodemographic/socioeconomic factors or the psychosocial factors would have a predictive relationship with Intent.

Pearson correlation analysis was conducted to examine relationships among the independent and dependent variables. At  $p = 0.01$  level, there were statistically significant relationships between the independent variables Self-Efficacy and Attitudes ( $r = .524$ ), Stereotypes and Attitudes ( $r = .343$ ), and Stereotypes and Self-Efficacy ( $r = .258$ ). The only statistically significant relationship among the independent variables and the dependent variable was between Stereotypes and Intent. Stereotypes about HIV/AIDS was significantly correlated with Intent ( $r = .201$ ) at  $p = 0.05$  level of significance. Next, Spearman Rho correlation was conducted to examine relationships between the sociodemographic/socioeconomic factors of education, income, relationship status and the dependent variable Intent. Results of the analysis indicated there was not a

statistically significant correlation between education, income, relationship status or Intent to use PrEP. These findings were unexpected as there is a wealth of evidence indicating a definite impact of population determinants of health, such as education, economics, and marital status on behavioral intention and sexual protective measures. However, when Age was added as a factor and examined for relationships between the independent and dependent variable, significant correlations were found. Pearson correlation indicated that at  $p = 0.01$  level of significance, Age was significantly correlated with Perceived HIV Risk ( $r = -.195$ ), Self-Efficacy ( $r = .290$ ), Attitudes ( $r = .311$ ) and Stereotypes ( $r = .191$ ). At  $p = 0.01$ , Age was also significantly correlated with the dependent variable Intent ( $r = -.320$ ) indicating a higher intent to use a biomedical prevention strategy such as PrEP among younger respondents.

Although there were no statistically significant correlations among education, income, relationship status and Intent, independent sample t-tests were still conducted to fully address and answer the research questions and hypotheses. Additionally, HIV testing within the last six months was also examined. As stated in Chapter Two, routine HIV testing for high-risk groups is a component of many evidence based HIV prevention programs. Knowing one's HIV status is an effective tool in preventing transmission and contraction of the virus. Also, one must be HIV negative before beginning a PrEP regimen. Education, income, relationship status, and HIV testing within the last six months were categorized into approximately equal groups within the sample and examined against Intent. As expected, results indicated that there was not a statistically

significant difference between groups when examining education, income, or relationship status and Intent. Surprisingly however, the same was the case with HIV test status; there was not a statistically significant difference between HIV test status groups and Intent to use PrEP within this sample.

After initial statistical analyses were conducted to examine relationships between variables, multiple regression analyses were conducted to examine predictive relationships, if any, existed. Initial regression analysis between the independent variables of Perceived HIV Risk, Self-efficacy, Attitudes, Stereotypes and Intent, indicated only a 5.4 percent variance in Intent attributable to the independent variables. While Stereotypes had the highest predictive relationship to Intent ( $\beta = .151$ ), all independent variables had p-values  $> .05$ , indicating none of the independent variables are statistically significant predictors of Intent to use a biomedical prevention strategy such as PrEP. Because of the correlation between Age and Intent, a second regression model including Age along with the independent variables was then examined. This modified model could explain 20.3 percent variance in the Intent to use a biomedical prevention strategy such as PrEP. As expected, Age had the highest predictive relationship to Intent ( $\beta = -.421$ ). Additionally, in this modified model, both Age and Stereotypes were found to have statistically significant predictive relationships to Intent at  $p = .000$  and  $p = .042$  respectively. As a result of these analyses, the research questions designed to examine associations between factors, and the research hypotheses developed to address those questions, were answered.

### **Research Question One**

Research question one sought to assess whether or not there was a relationship between Sociodemographic/socioeconomic factors such as education, income, relationship status and Intent to use a biomedical prevention strategy such as PrEP among the AA women in the southern US. Spearman Rho correlation analysis was conducted to examine any relationship between education, income, relationship status and Intent. Results indicated there was no statistically significant relationship between the sociodemographic/socioeconomic factors of education, income or relationship status and Intent to use PrEP among this sample (Table 8).

### **Research Question Two**

Research question two sought to assess whether or not there was a relationship between Perceived HIV Risk Perception and Intent to use PrEP as an HIV prevention strategy among AA women in the southern US. Pearson correlation analysis was conducted to examine the relationship between the independent variable of Perceived HIV Risk and Intent. Results indicated there was no statistically significant relationship between Perceived HIV Risk and Intent to use PrEP among this sample (Table 7).

### **Research Question Three**

Research question three sought to assess whether or not there was a relationship between Self-Efficacy to perform HIV protective behaviors and Intent to use PrEP as an

HIV prevention strategy among AA women in southern US. Pearson correlation analysis was conducted to examine the relationship between the independent variable of Self-Efficacy to perform sexual protective behaviors and Intent. Results indicated there was no statistically significant relationship between the Self-Efficacy and Intent to use PrEP among this sample (Table 7).

#### **Research Question Four**

Research question four sought to assess whether or not there was a relationship between Attitudes toward condoms and the Intent to use PrEP as an HIV prevention strategy among AA women in the southern US. Pearson correlation analysis was conducted to examine the relationship between the independent variable of Attitudes toward condoms and Intent. Results indicated there was no statistically significant relationship between Attitudes toward condoms and Intent to use PrEP among this sample (Table 7).

#### **Research Question Five**

Research question five sought to assess whether or not there was a relationship between Stereotypes about HIV/AIDS and Intent to use PrEP as an HIV prevention strategy among AA women in the southern US. Pearson correlation analysis was conducted to examine the relationship between the independent variable of Stereotypes about HIV/AIDS and Intent. Results indicated at  $p = 0.05$  level of significance, there was

a statistically significant correlation between Stereotypes about HIV/AIDS and Intent to use PrEP among this sample ( $r = .201$ ) (Table 7).

## **Hypotheses**

The study tested a total of five null hypotheses to address the research questions proposed in the study.

H<sub>0</sub> 1: There is no statistically significant difference between Sociodemographic/socioeconomic factors such as education, income and relationship status and Intent to use PrEP among AA women in the southern US.

H<sub>0</sub> 2: There is no statistically significant predictability between Perceived HIV Risk and Intent to use PrEP among AA women in the southern US.

H<sub>0</sub> 3: There is no statistically significant predictability between Self-Efficacy to perform HIV protective behaviors and Intent to use PrEP among AA women in the southern US. Multiple regression analysis was conducted to examine

H<sub>0</sub> 4: There is no statistically significant predictability between Attitudes toward condoms and Intent to use PrEP among AA women in the southern US.

H<sub>0</sub> 5: There is no statistically significant predictability between Stereotypes about HIV/AIDS and Intent to use PrEP among AA women in the southern US.

As previously stated, initial Spearman Rho correlations analyses were conducted; which indicated no statistically significant correlation between the

Sociodemographic/socioeconomic factors education, income, relationship status and the dependent variable of Intent. Additionally, independent sample t-tests ruled out statistically significant differences between education levels, income, and relationship status groups within the sample and Intent. Based on these outcomes, H<sub>0</sub>1 cannot be rejected. Regarding the remaining research hypotheses (H<sub>0</sub> 2 through H<sub>0</sub> 5), regression analyses conducted to examine whether a predictive relationship existed between Intent to use PrEP and the independent variables resulted in p-values > .05 for each independent variable. This indicated none of the independent variables are statistically significant predictors of Intent to use a biomedical prevention strategy such as PrEP among this sample (Table 14). To that end, in addition to H<sub>0</sub>:1 neither H<sub>0</sub>: 2, H<sub>0</sub>:3, H<sub>0</sub>:4 nor H<sub>0</sub>:5 can be rejected (Table 15).

Table 15

*Hypotheses Testing*

<b>Hypotheses</b>	<b>Conclusion</b>
H <sub>0</sub> : 1	Not Rejected
H <sub>0</sub> : 2	Not Rejected
H <sub>0</sub> : 3	Not Rejected
H <sub>0</sub> : 4	Not Rejected
H <sub>0</sub> : 5	Not Rejected

### **Discussion and Implications**

Early on in the US HIV epidemic, most prevention efforts promoted addressing high-risk sexual behavior and increased condom use. These historical high-risk behavioral interventions have had little to no impact on decreasing HIV transmission



rates among AA women. This is primarily due to a dearth of research conducted to effectively understand and address the context of biological, social, behavioral, and structural factors that influence sexual behavior choices and increase transmission risk of HIV among this group (Cellum et al., 2015). More recently, there have been effective advances in the development and availability of HIV prevention strategies and therapeutic treatment options such as antiretroviral therapy (ART) (CDC, 2014d). While proper and consistent condom use remains a highly effective HIV prevention method, PrEP has shown effectiveness at reducing acquisition of HIV in those testing negative for the HIV virus. This new approach, central to national and global organizations such as the CDCs National HIV/AIDS Strategy and the WHO's new guidance recommendations on oral pre-exposure prophylaxis (PrEP), is committed to preventing the spread of HIV by deploying a combination of evidence based, effective, scalable tools and resources to areas and populations most vulnerable to the disease and where they will have the greatest impact (CDCd, 2014). Components of the CDCs Continuum of Care Strategy include increasing individual awareness of HIV status through testing, increasing linkages to care and treatment for those diagnosed with HIV and increasing proportions of viral load suppression in those diagnosed with HIV. Part of this scalable, evidence based, continuum of care strategy should include preventative PrEP uptake in uninfected persons. In 2014, the CDC issued clinical practice guidelines which provided comprehensive recommendations and use of PrEP (CDC, 2014b) as well as a clinical providers supplement, which provided useful information for clinicians who prescribed

PrEP (CDCc, 2014). In September 2015, the World Health Organization issued a new recommendation regarding PrEP. The recommendation, based on high quality evidence, suggests that oral PrEP containing Tenofovir should not only be offered to high-risk groups but should also be offered as an HIV prevention method to individuals as part of a combination strategy. An additional component of these recommendations however, should include the integration of relevant social, economic, and psychosocial factors that might impact an individual's decision to use a biomedical HIV prevention strategy such as PrEP. Personalized approaches allow individuals to make decisions regarding their personal sexual protective measures based on individual assessment factors rather than group factors (WHO, 2015) which would assist in addressing the HIV rate disparity between AA heterosexual women and other racial/ethnic groups.

Implications of this research study reinforce the necessary inclusion of individual factors that influence the likelihood of adopting sexual protective behavioral choices. Additionally, outcomes of this study strengthens support for inclusion of the health educator in the assessment, development, and implementation of HIV prevention programs that are not only comprehensive but highly specific and based on psychosocial needs of AA women. This study was designed to examine psychosocial factors of AA women which might influence Intent to use PrEP. The study was also designed to gain insight into any predictive relationships between Intent to use PrEP and the identified psychosocial, sociodemographic, and socioeconomic factors, contextual to AA women living in a specific geographical region. When psychosocial factors selected for analysis

in this study were assessed, Stereotypes about HIV/AIDS was the only psychosocial factor significantly correlated with Intent to use a biomedical HIV prevention strategy such as PrEP. Furthermore, in separate analyses, Age was identified as the only sociodemographic factor correlated with all four independent variables as well the only sociodemographic variable identified as having a predictive relationship to Intent. Moreover, when assessed together, both Stereotypes about HIV/AIDS and Age had statistically predictive relationships to Intent to use PrEP. This predictive relationship with Intent to use PrEP was an inverse one indicating Intent to use PrEP was higher among younger respondents. This finding is significant because AA women of all age groups are at risk for contracting HIV and individuals 50 years and older now account for the fastest growing groups of new HIV cases compared to those 40 years and under (Slinkard and Kazer, 2011). In addition to increasing HIV rates in this group, in 2005, HIV was the fifth leading cause of death among older AA women (Cornelius, Moenyham & LeGrand, 2008). While there have been numerous health education programs developed to decrease HIV among high-risk groups, few of them resulted in decreasing HIV rates among AA women and even fewer have targeted older women (Cornelius, Moenyham, & LeGrand, 2008).

### **Recommendations**

African Americans account for approximately 22 percent of the US population. However they represent more than half of new HIV infections annually. While there are many factors that have been shown to impact an individual's sexual decision making and

sexual protective behaviors, results of this research study signal the need for comprehensive health education programs, inclusive of high impact strategies and targeted to all age groups. Components of the program should attempt to decrease HIV/AIDS Stereotypes and stigma by increasing awareness about the negative impact it has on sexual protective behavior, increase awareness about HIV transmission risk among AA women of all age groups, and it should increase awareness regarding the benefit of PrEP as a biomedical prevention strategy.

Because stereotypes about HIV/AIDS create barriers to HIV protective measures, a key recommendation based on these research findings include the development of health education programs to influence PrEP adoption by addressing negative stereotypes and stigma about HIV and those living with HIV/AIDS. The higher one's agreement with HIV/AIDS stereotypes and stigma, the more one may perceive themselves to be removed from HIV/AIDS as a serious issue. This distancing may result in a false sense of security, ultimately causing those at risk to believe protection from HIV is not required. If one does not believe they are at risk for contracting HIV, they may behave as if they are not at risk. Therefore, they may be less likely to discuss sexual health issues with their partner or a healthcare provider, less likely to adopt sexual protective measures such as HIV testing, less likely to use condoms consistently during sexual intercourse, and less likely to adopt PrEP.

A second recommendation includes development of comprehensive health education programs to increase awareness about HIV transmission risk and HIV

prevention strategies for AA women that are age and culturally specific. Basic components of such an approach would include information and resources providing regular HIV testing, education on reduction of high-risk sexual behavior, access to healthcare and information on HIV prevention. Critical to the success of such programs depend on support from the healthcare community including health educators and physicians. Health educators are responsible for planning and implementing health education programs and serving as a health education resource to priority populations. Additionally, physicians are the sole prescribers of antiviral therapy. Therefore, providers of healthcare must be knowledgeable about the benefits of PrEP and be willing to discuss and provide this treatment option to their patients and the broader community based on targeted customized programs.

A third key recommendation should include the development of HIV awareness efforts developed by the health education community in collaboration with social support networks, central to the lives of Black women. This includes the AA church, community centers, family members, and friends. These networks are core to the AA community and are a primary source of health related information including HIV risk reduction strategies. Adaptive marketing channels that reach AA women of various age groups should be utilized when implementing these programs and culturally specific behavior models should be used when evaluating them. Diverse communication channels such as church publications, community radio outlets, local broadcast media, and community

outreach events should be fundamental to HIV awareness efforts within the AA community.

Lastly, in addition to having a broader understanding of the psychosocial factors that influence Intent to use PrEP, policy level interventions that address social determinants of health that increase HIV rates in AA community must be addressed as well. While sociodemographic/socioeconomic factors were not found to be significant predictors of Intent to use PrEP among this sample group, there is a wealth of evidence to substantiate the negative impact of poverty, low education attainment, place of residency, relationship status, and age on overall health outcomes.

### **Study Limitations**

Three primary limitations were noted regarding this research study. First, secondary data was collected and analyzed for the purposes of this research study. While secondary data is convenient and often more easily accessible than primary data, the researcher has no control over the quality or validity of secondary data being analyzed. Secondly, the relatively small size of the sample was also limitation. Small sample sizes impact reliability of results by increasing the probability of statistical variation; therefore making it more difficult for the researcher to distinguish between actual and random results. Finally, survey respondents were segmented to the southern US. As a result, outcomes of this research study cannot be generalized outside of this sample population.

## **Implications for Further Research**

Outcomes of this research study generated questions which should be explored in an effort to contribute to the existing body of research regarding HIV risk among African American women. Recommendations for further research include an examination of the following questions:

1. Are there additional sociodemographic/socioeconomic factors, unique to AA women that contribute to increasing HIV rates?
2. Do psychosocial factors which impact HIV transmission and Intent to use PrEP as an HIV prevention strategy among AA women differ by geographic region?
3. Does Perceived HIV Risk and Intent to use PrEP as an HIV prevention strategy among AA differ by geographic region?

## **Conclusion**

Gaining a broader understanding of key personal and social factors that contribute to increasing HIV rates among AA women is critical. Doing so allows health educators to adequately assess, plan, and implement health promotion programs, which are customized to meet the needs of this high-risk population. Otherwise, HIV prevention, void of these considerations, may result in the continued increase of HIV/AIDS among AA women and create a wider gap between HIV perception, HIV risk, and Intent to use a biomedical HIV prevention strategy among AA women in the southern United States.

## REFERENCES

- Adams, L., Stuewig, J., Tangney, J., & Kashdan, T. (2014). Perceived susceptibility to AIDS predicts subsequent HIV risk: a longitudinal evaluation of jail inmates. *Journal of Behavioral Medicine, 37*, 511-523.
- Adimora, A., & Schoenbach, J. (2005). Social context, sexual networks, and racial disparities in rates of sexually transmitted infections. *The Journal of Infectious Diseases, 91*, S115-22.
- Adimora, A., Schoenbach, V., & Floris-Moore. (2009). Ending the epidemic of heterosexual HIV transmission among African Americans. *American Journal of Preventive Medicine, 37*(5), 468-471.
- Adimora, A., Schoenbach, V., Martinson, F., Donaldson, K., Stanicil, T., & Fullilove. (2003). Concurrent sexual partnerships among African Americans in the rural south. *Annals of Epidemiology, 14*, 155-160.
- Adimora, A., Schoenbach, V., Taylor, E., Khan, M., Schwartz, R., & Miller, W. (2013). Sex ratio, poverty, and concurrent partnerships among men and women in the United States: a multilevel analysis. *Annals of Epidemiology, 23*, 716-719.
- Advocates for Youth. (2008). *Understanding disparities in the HIV epidemic: How social and cultural forces lead to unequal risk for African Americans/Black*. Retrieved



May 30, 2014 from

<http://www.advocatesforyouth.org/storage/advfy/documents.pdf>.

AETC National Resource Center. (2014). HIV classification: CDC and who staging systems. Retrieved August 7, 2014 from <http://aidsetc.org/guide/hiv-classification-cdc-and-who-staging-systems>

Amutah, N. (2012). African American women: The face of HIV/AIDS in Washington, DC. *The Qualitative Report*, 17, 1-15.

An, Q., Prejean, J., & Hall, I. (2012). Racial disparity in us diagnosis of acquired immune deficiency syndrome, 2000-2009. *American Journal of Prev Med*, 43, 461-466.

Aral, S., Adimora, A., & Fenton, K. (2008). Understanding and responding to disparities in HIV and other sexually transmitted infections in African Americans. *The Lancet*, 372, 337- 340.

Baeten, J., Donnell, D., Ndase, P., Mugo, N., Campbell, J., Tappero, J., et al. (2012). Antiretroviral prophylaxis for HIV prevention in heterosexual men and women. *The New England Journal of Medicine*, 367, 399-409.

Benotsch, E., Rodriguez, V., Hood, K., Lance, S., Green, M., & Martin, A., et al. (2012). Misleading sexual partners about HIV status among persons living with HIV/AIDS. *Journal Community Health*, 37, 1049-1057.

- Bertand, J. (2004). Diffusion of innovations and HIV/AIDS. *Journal of Health Communications, 9*, 113-121.
- Brewer, N., Weinstein, N., Cuite, C., & Herrington, J. (2004). Risk perceptions and their relation to risk behavior. *Annals of Behavioral Medicine, 27*, 125-130.
- Bowleg, L. Lucas, K., Tschann, J. (2004). "The ball was always in his court": An exploratory analysis of relationship scripts, sexual scripts, and condom use among African American women. *Psychology of Women Quarterly, 28*, 70-82.
- Buot, M., Docena, J., Ratemo, B., Bittner, M., Burlew, J., Nuritdinov, A., et al. (2014). Beyond race and place: Distal sociological determinants of HIV disparities. *Public Library of Science, 9*, 1-15.
- Burns, M., & Dillon, F. (2005). AIDS health locus of control, self-efficacy for safer sexual practices, and future time orientation as predictors of condom use in African American college students. *Journal of Black Psychology, 31*, 172-188.
- Cellum, C., Delaney-Mrethwe, S., McConnell, M., Rooyen, H., Bekker, L., Kurth, A., et al. (2015). Rethinking HIV prevention to prepare for oral PrEP implementation for young African women. *Journal of the International AIDS Society, 18*, 1-10.
- Centers for Disease Control and Prevention. (2007). *CDC HIV prevention plan: Extended through 2010*. Retrieved July 23, 2015 from <https://www.hsdl.org/?view&did=482148>

Centers for Disease Control and Prevention. (2010). *National HIV/AIDS strategy for the United States*. Retrieved September 3, 2014 from

<https://www.whitehouse.gov/sites/default/files/uploads/NHAS.pdf>

Centers for Disease Control and Prevention. (2012). *CDC fact sheet: New HIV infections in the United States*. Available from

<http://www.cdc.gov/nchhstp/newsroom/docs/2012/hiv-infections-2007-2010.pdf>

Centers for Disease Control and Prevention. (2013). *Condom effectiveness: Condom fact sheet in brief*. Retrieved April 10, 2014 from

<http://www.cdc.gov/condomeffectiveness/brief.html>

Centers for Disease Control and Prevention [CDCa]. (2014). *HIV among women*.

Retrieved June 9, 2014 from

<http://www.cdc.gov/hiv/risk/gender/women/facts/index.html>.

Centers for Disease Control and Prevention [CDCb]. (2014). *Preexposure prophylaxis for the prevention of HIV infection in the united states- 2014: A clinical practice guideline*. Retrieved June 5, 2015 from

<http://www.cdc.gov/hiv/pdf/prepguidelines2014.pdf>

Centers for Disease Control and Prevention [CDCc]. (2014). *Preexposure prophylaxis for the prevention of HIV infection in the United States- 2014: Clinical Provider's Supplement*. Retrieved June 5, 2015 from

<http://www.cdc.gov/hiv/pdf/PrEPProviderSupplement2014.pdf>

Centers for Disease Control and Prevention [CDCd]. (2014) *Understanding the HIV care continuum*. Retrieved October 1, 2015 from

[http://www.cdc.gov/hiv/pdf/dhap\\_continuum.pdf](http://www.cdc.gov/hiv/pdf/dhap_continuum.pdf)

Centers for Disease Control and Prevention [CDCa]. (2015). *CDC fact sheet: HIV and AIDS among Latinos*. Retrieved July 23, 2015 from

<http://www.cdc.gov/nchhstp/newsroom/docs/CDC-HIV-Latinos-508.pdf>

Centers for Disease Control and Prevention [CDCb]. (2015). *Effective interventions: HIV prevention that works*. Retrieved July 23, 2015 from Centers for Disease Control and Prevention.

Centers for Disease Control and Prevention [CDCc]. (2015). *HIV/AIDS prevention research*. Retrieved January 5, 2015 from

<http://www.cdc.gov/hiv/prevention/index.html>

Centers for Disease Control and Prevention [CDCd]. (2015). *HIV Basics*. Retrieved July 23, 2015 from <http://www.cdc.gov/hiv/basics/index.html>

Centers for Disease Control and Prevention [CDCe]. (2015). *HIV among African Americans*. Retrieved July 26, 2015 from

<http://www.cdc.gov/nchhstp/newsroom/docs/cdc-hiv-aa-508.pdf>

Centers for Disease Control and Prevention [CDCf]. (2015). *HIV among gay and bisexual men*. Retrieved July 23, 2015 from

<http://www.cdc.gov/hiv/group/msm/index.html>

Centers for Disease Control and Prevention [CDCg]. (2015). *HIV and injection drug use*.

Retrieved July 23, 2015 from <http://www.cdc.gov/hiv/pdf/g-l/cdc-hiv-idu-fact-sheet.pdf>

Chandra, A., & Paul, D. (2003). African American participation in clinical trials:

Recruitment difficulties and potential remedies. *Healthcare and Public Policy*, 81, 33-38.

Conner, M., & Norman, P. (1995a). *Predicting health behaviors: Research and practice with social cognition models*. Buckingham: Open University Press.

Conner, M., & Norman, P. (1995b). *Self-efficacy and health behaviors*. Retrieved

September 3, 2014 from <http://userpage.fu-berlin.de/gesund/publicat/conner9.htm>

Cornelius, J., Moenyham, L., & LeGrand, S. (2008). Adaptation of an HIV prevention curriculum for use with older African American women. *Journal of the Association of Nurses in AIDS Care*, 19, 16-27.

El-Bassel, N., Caldeira, A., Ruglass, L., & Gilbert, L. (2009). Addressing the unique needs of African American women in HIV prevention. *American Journal of Public Health*, 99, 996-1001.

Ferguson, Y. O., Quinn, S. C., Eng, E., & Sandelowski, M. (2006). The gender ratio imbalance and its relationship to risk of HIV/AIDS among African American women at historically Black colleges and universities. *AIDS Care*, 18, 323-331.

- Fisher, T., Davis, C., Yarber, W., & Davis, S. (2010). *Handbook of sexuality-related measures* (3<sup>rd</sup> ed.). New York: Routledge.
- Fitzpatrick, L. Sutton, M., Greenberg, A., & Georgia, A. (2006). Towards eliminating health disparities in HIV/AIDS. The importance of the minority investigator in addressing scientific gaps in Black and Latino communities. *Journal of The National Medical Association*, 98, 1906-1910.
- Fortenberry, J., McFarlane, M., Bleakley, A., Bull, S., Fishbein, M., Grimly, D., et al. (2002). Relationships of stigma and shame to gonorrhea and HIV screening. *American Journal of Public Health*, 92, 378-381.
- Foster, V., Clark, P., Holstad, M., & Burgess, E. (2012). Factors associated with risky sexual behaviors in older adults. *Journal of The Association of Nurses in AIDS Care*, 23, 487-499.
- Frew, P., Hou, S., Davis, M., Chan, K., Horton, T., Shuster, J. et al. (2010). The likelihood of participation in clinical trials can be measured: The clinical research Involvement Scales (CRIS). *Journal of Clinical Epidemiology*, 63, 1110-1117.
- Frye, V., Williams, K., Bond, K., Henny, K., Cupid, M., Weiss, L., et al. (2013). Condom use and concurrent partnering among heterosexually active, African American men: a quantitative report. *Journal of Urban Health*, 5, 953-69.
- Galvan, F., Davis, E., Banks, D., Bing, E. (2008). HIV stigma and social support among African American women. *AIDS Patient Care*, 22, 423-436.

- Glanz, K., Rimer, B., & Lewis, F. (2002). Health behavior and health education: Theory, research and practice (3<sup>rd</sup> ed.). San Francisco, CA: Josey-Bass.
- Grant, D., & Marshall, K. (2013). *Next steps for PrEP: Getting a proven prevention option to the right people*. Retrieved February 3, 2015 from [http://www.poz.com/pdfs/gmhc\\_treatmentissues\\_2013\\_6.pdf](http://www.poz.com/pdfs/gmhc_treatmentissues_2013_6.pdf)
- Gorbach, P., Murphy, R., Weiss, R., Hucks-Ortiz, & Shoptaw, S. (2009). Bridging sexual boundaries: Men who have sex with men and women in a street-based sample in Los Angeles. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 86, S63-S76.
- Hall, N. (2013). Sociosexuality, human immunodeficiency virus (HIV) susceptibility, and sexual behavior among African American women. *Journal of AIDS and HIV Research*, 5(2), 43-51.
- Hankins, C., Macklin, R., Warren, M. (2015). Translating PrEP effectiveness into public health impact: Key considerations for decision-makers on cost-effectiveness, price, regulatory issues, distributive justice and advocacy for access. *Journal of the International AIDS Society*, 18, S1-7.
- Health Resources and services Administration [HRSA]. (n.d.). *A living history: The ryan white HIV/AIDS program*. Retrieved July 23, 2015 from <http://www.hrsa.gov/index.html>

- Hollub, A., Reece, M., Horbenick, D., Hensel, D., & Middlestadt, S. (2011). College students and condom attitude: Validation of the multi-factor attitude toward condoms scale (mfacs). *Journal of American College Health*, 59, 708-714.
- Hosseinzadeh, H., Hossain, S. (2011). Functional analysis of HIV/AIDS stigma: Consensus or divergence? *Health Education & Behavior*, 38, 584-595.
- Jackson, F., Early, K., Myers-Schim, S., & Penprase, B. (2005). HIV knowledge, perceived seriousness and susceptibility, and risk behaviors of older African Americans. *The Journal of Multicultural Nursing & Health*, 11, 56-62.
- Jipguep, M., Sanders-Philipz, K., & Cotton, L. (2004). Another look at HIV in African American women: The impact of psychosocial and contextual factors. *Journal of Black Psychology*, 30(3), 366-385.
- Kaiser Family Foundation. (2014a). *Black Americans and HIV/AIDS*. Retrieved June 24, 2014 <http://kff.org/hiv aids/fact-sheet/black-americans-and-hiv-aids/>.
- Kaiser Family Foundation. (2014b). *The HIV/AIDS epidemic in the United States*. Retrieved May 14, 2014 from <http://kff.org/hiv aids/fact-sheet/the-hiv-aids-epidemic-in-the-united-states/>
- Khawcharoenporn, T., Kendrick, S. & Smith, K. (2012). HIV risk perception and preexposure prophylaxis interest among a heterosexual population visiting a sexually transmitted infection clinic. *AIDS Patient Care STDs* 26(4), 222-33



- Knudsen, H., Luekefeld, C., Havens, J., Duvall, J., Oser, C., Staton-Tindall, M. (2008), Partner relationships and HIV risk behaviors among women offenders. *Journal of Psychoactive Drugs*, 40, 471-481.
- Kowalewski, M., Henson, K., Longshore, D. (1997). Rethinking perceived risk and health behavior: A critical review of HIV prevention research. *Health Education Behavior*, 24, 313-325.
- Laurencin, C.T., Christensen, D., Taylor, E. (2008). HIV/AIDS and the African American community; A state of emergency. *Journal of the National Medical Association*, 100, 35-43.
- Lear, D. (1995). Sexual communication in the age of AIDS: The construction of risk and trust among young adults. *Social Science Medicine*, 41, 1311-1323.
- McNair, L., & Prather, C. (2004). African American women and AIDS: Factors influencing risk and reaction to HIV disease. *Journal of Black Psychology*, 30, 106-123.
- Mallory, C. (2008). African American women's experience of infections with HIV in the rural southeastern United States. *Journal of the Association of Nurses in AIDS Care*, 19, 28-36.
- Mannell, J., Cornish, F., Russell, J. (2014). Evaluating social outcomes of HIV/AIDS interventions: a critical assessment of contemporary indicator frameworks. *Journal of the International AIDS Society*, 17, 1-11.

- Mawar, N., Sahay, S., & Mahajan, U. (2005). The third phase of HIV pandemic: social consequences of HIV/AIDS stigma & discrimination. *Indian Journal of Medical Residency, 122*, 741-484.
- Misovich, S. J., Fisher, J. D., & Fisher, W. (1997). Close relationships and elevated HIV risk behavior: Evidence and possible underlying psychological processes. *Review of General Psychology, 1*, 72-107.
- Mize, S., Robinson, B., Bockting, W., & Scheltema, K. (2002). Meta-analysis of the effectiveness of HIV prevention interventions for women. *AIDS Care, 14*, 163-80.
- Merriam-Webster, Inc. (2015). *Sociodemographic*. Retrieved July 23, 2015 from <http://www.merriam-webster.com/dictionary/sociodemographic>
- Mortality and Morbidity Weekly Report [MMWR]. (2011). *Characteristics associated with HIV infection among heterosexuals in urban area with high AIDS prevalence- 24 cities, United States, 2006-2007*. MMWR, 60, 1045-1049.
- Napper, L., Fisher, D., & Reynolds. (2012). *AIDS Behavior, 16*, 1075-1083.
- National Alliance of State & Territorial AIDS Directors [NASTAD]. (2008). *The landscape of HIV/AIDS among African American women in the United States*. Available at <http://stacks.cdc.gov/view/cdc/5270/Share>
- Nunn, A., Zaller, N., Cornwall, A., Mayer, K., Moorer, E., Dickman, et al. (2011). Low perceived risk and high HIV prevalence among a predominately African

- American population participating in Philadelphia's rapid HIV testing program. *AIDS Patient*, 25, 1-7.
- Paxton, K., Villarreal, B., & Hall, N. (2013). Increasing knowledge of HIV transmission: An important ingredient in HIV risk reduction among young African American women attending community college. *Journal of HIV/AIDS and Infectious Diseases*, 2, 1-7.
- Paxton, K., Williams, J., Bolden, S., Guzman, Y., & Harawa, T. (2013). HIV risk behaviors among African American women with at-risk-male partner. *Journal of AIDS and Clinical Research*, 4, 1-8.
- Prejean, J., Tang, T., & Hall, I. (2013). HIV diagnosis and prevalence in the southern region of the United States. *Journal of Community Health*, 38, 414- 426.
- Pligt, J. (1998). Perceived risk and vulnerability as predictors of precaution behavior. *British Journal of Health Psychology*, 3, 1-14.
- Pulerwitz, J., Amaro, H., De Jong, W., Gortmaker, S.L., & Rudd, R. (2002). Relationship power, condom use and HIV risk among women in the USA. *AIDS Care*, 14, 789-800.
- Raj, A., Bowleg, L. (2012). Heterosexual risk for HIV among black men in the United States: A call to action against a neglected crisis in the black communities. *American Journal of Men's Health*, 6, 178-181.

- Reif, S., Whetten, K., Wilson, E., McAllaster, C., Pence, B., Legrand, S., & Gong, W. (2014). HIV/AIDS in the southern USA: A disproportionate epidemic. *AIDS Care*, 26, 351-359.
- Robinson, R. & Moodie-Mills, A. (2012). *HIV/AIDS inequality: Structural barriers to prevention, treatment, and care in communities of color*. Retrieved July 24, 2015 from [https://cdn.americanprogress.org/wp-content/uploads/issues/2012/07/pdf/hiv\\_community\\_of\\_color.pdf](https://cdn.americanprogress.org/wp-content/uploads/issues/2012/07/pdf/hiv_community_of_color.pdf)
- Roy, K., Mahapatra, B., Bhanot, A., Kapoor, A., & Narayanan, S. (2012). Psychosocial correlates of HIV-related sexual risk factors among male clients in southern India. *International Journal of Psychology and Behavioral Sciences*, 2(6), 245-254.
- Sengupta, S., Strauss, R., Miles, M., Roman-Isler, M., Banks, B., & Corbie-Smith, G. (2010). A conceptual model exploring the relationship between HIV stigma and implementing HIV clinical trials in rural communities of North Carolina. *North Carolina Medical Journal*, 71, 113-122.
- Slinkard, M., & Kazer, M. (2011). Older adults and HIV and STI screening: The patient perspective. *Geriatric Nursing*, 32, 341-349.
- Sharp, P., & Hahn, B., (2011). Origins of HIV and the AIDS pandemic. *Cold Spring Harbor Perspectives in Medicine*, 1, 1-22

- Sharpe, T., Voute, C., Rose, M., Cleveland, J., Dean, H., & Fenton, K. (2012). Social determinants of HIV/AIDS and sexually transmitted diseases among black women: Implications for health equity. *Journal of Women's Health, 21*, 249-254.
- Shelton, J. D., Cassell, M.M., Adetunji, J. (2005). Is poverty or wealth at the root of HIV? *The Lancet, 366*, 1057-1058.
- Strathdee, S. A., & Stockman, J.K. (2010). Epidemiology of HIV among injecting and non-injecting drug users: current trends and implications for interventions. *Current HIV/AIDS Report, 7*, 99-106.
- Smith, D., Toledo, L., Smith, D., Adams, M., & Rothenberg, R. (2012). Attitudes and program preferences of African-American urban young adults about pre-exposure prophylaxis (PreP). *AIDS Education and Prevention, 24*(5), 408-421.
- Sowicz, T., Teitelman, A., Coleman, C., & Brawner, B. (2014). Considerations for implementing preexposure prophylaxis: A literature review. *Journal of the Association of Nurses in AIDS Care, 25*(6), 496- 507.
- Stampley, C., Mallory, C., & Gabrielson, M. (2005). HIV/AIDS among midlife African American women: An integrated review of literature. *Research in Nursing & Health, 28*, 295-305.
- Theall, K., Elifson, K., Sterk, C., & Klein, H. (2003). Perceived susceptibility to HIV among women: Differences according to age. *Research in aging, 25*, 405-432.

The White House Office of National AIDS Policy. (2010). *National HIV/AIDS strategy for the United States*. Retrieved September 4, 2013 from <https://www.whitehouse.gov/sites/default/files/uploads/NHAS.pdf>

Tuskegee University. (2015). *About the USPHS syphilis study*. Retrieved November 1, 2015 from [http://www.tuskegee.edu/about\\_us/centers\\_of\\_excellence/bioethics\\_center/about\\_the\\_usphs\\_syphilis\\_study.aspx](http://www.tuskegee.edu/about_us/centers_of_excellence/bioethics_center/about_the_usphs_syphilis_study.aspx).

University of California San Francisco [UCSF]. (2006). *How does stigma affect HIV prevention and treatment?* Retrieved December 12, 2014 from <http://caps.ucsf.edu/archives/factsheets/stigma>

US Bureau of Labor and Statistics. (2013). *Labor force characteristics by race and ethnicity*. Retrieved July 22, 2015 from <http://www.bls.gov/cps/cpsrace2013.pdf>

US Census Bureau. (2014). *Census regions and division of the United States*. Retrieved November 13, 2014 from <http://www.census.gov/geo/maps-data/maps/pdfs/reference/us-regdiv.pdf>.

US Department of Commerce. (2014). *Income and poverty in the United States: 2013*. Retrieved January 8, 2015 at <https://www.census.gov/content/dam/Census/library/publications/2014/demo/p60-249.pdf>

- US Department of Health and Human Services. (2013). *HIV/AIDS and African Americans*. Retrieved February 1, 2014 from <http://minorityhealth.hhs.gov/templates/content.aspx?ID=3019>
- US Department of Health and Human Services. (2015). HIV test types. Retrieved August 7, 2015 from <https://www.aids.gov/hiv-aids-basics/prevention/hiv-testing/hiv-test-types/>
- US Food and Drug Administration. (2012). *FDA approves first drug for reducing the risk of sexually acquired HIV infection*. Retrieved January 5, 2015 from <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm312210.htm>
- US Food and Drug Administration [FDA]. (2012). *Truvada for PrEP fact sheet: Ensuring safe and proper use*. Retrieved March 13, 2014 from <http://www.fda.gov/downloads/NewsEvents/Newsroom/FactSheets/UCM312279.pdf>
- Ward, E., Disch, W., Levy, J., & Schensul, J. (2004). Perceptions of HIV/AIDS risk among urban, low-income senior-housing residents. *AIDS Education and Prevention* 16, 517-588.
- Wingood, G., Dunkle, K., Camp, C., Patel, S., Painter, J., Rubtsova, A., et al. (2013). Racial differences and correlates of potential adoption of preexposure

- prophylaxis: results of a national survey. *Journal of Acquired Immune Deficiency Syndrome, 1*(63), S95-101.
- Wejnert, C., Le, B., Rose, C.E., Oster, A.M., Smith, A.J., Zhu, J., et al. (2013). HIV infection and awareness among men who have sex with Men: 20 cities, United States, 2008 and 2011. *Public Library of Science, 8*, 1-9.
- Whyte, J., Whyte, M., & Cormier, E. (2010). Down low sex, older African American women, and HIV infection. *Journal of Association of Nurses in AIDS Care, 19*, 423-431.
- Williams, J., Wyatt, G., & Wingood, G. (2010). The four c's of HIV prevention with African Americans: Crisis, condoms, culture, and community. *Current HIV/AIDS Report, 7*, 185-193.
- Winfield, E., & Whaley, A. (2005). Relationship status, psychological orientation, and sexual risk taking in a heterosexual African American college sample. *Journal of Black Psychology, 31*, 189-204.
- Winningham, A., Corwin, S., Moore, C., Richter, E., Sargent, R., & Gore-Felton, C. (2004). The changing age of HIV: sexual risk among older African American living in rural communities. *Preventive Medicine, 39*, 809-814.
- World Health Organization. (2015). *Guideline on when to start antiretroviral therapy and on pre-exposure prophylaxis for HIV*. Retrieved October 15, 2015 from <http://www.who.int/hiv/pub/guidelines/earlyrelease-arv/en/>



World Health Organization. (2014). *HIV/AIDS*. Retrieved March 10, 2015 from

<http://www.who.int/mediacentre/factsheets/fs360/en/>

Young, S., Hlavka, Z., Modiba, P., Gray, G., Rooyen, H., ichter, L., et al. (2010). HIV related stigma, social norms, and HIV testing in Soweto and Vulindlela, South Africa: National institutes of mental health project accept (hptn 043). *Acquired Immune Deficiency Syndrome*, 55, 620-624.

Young, S., Salem, D., & Bybee, D. (2010). Risk revised: The perception of HIV risk in a community sample of low-income African American women. *Journal of Black Psychology*, 36, 49-74.

## APPENDIX A

### IRB Approval Letter



**Institutional Review Board**

Office of Research and Sponsored Programs  
P.O. Box 425619, Denton, TX 76204-5619  
940-898-3378  
email: [IRB@twu.edu](mailto:IRB@twu.edu)  
<http://www.twu.edu/irb.html>

DATE: June 5, 2015

TO: Ms. Stephanie Hale  
Health Studies

FROM: Institutional Review Board - Denton

*Re: Exemption for Examining psychosocial factors and intent to use PrEP as an HIV prevention strategy among African American women living in the southern United States (Protocol #: 18191)*

The above referenced study has been reviewed by the TWU Institutional Review Board (IRB) and was determined to be exempt from further review.

If applicable, agency approval letters must be submitted to the IRB upon receipt PRIOR to any data collection at that agency. Because a signed consent form is not required for exempt studies, the filing of signatures of participants with the TWU IRB is not necessary.

Although your protocol has been exempted from further IRB review and your protocol file has been closed, any modifications to this study must be submitted for review to the IRB using the Modification Request Form. Additionally, the IRB must be notified immediately of any adverse events or unanticipated problems. All forms are located on the IRB website. If you have any questions, please contact the TWU IRB.

cc. Dr. Roger Shipley, Health Studies  
Dr. Kimberly Parker, Health Studies  
Graduate School